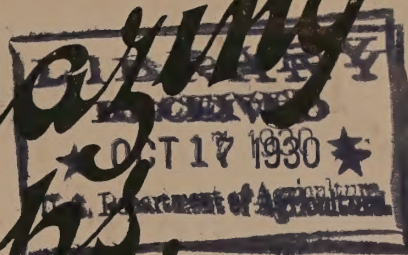


63.9
AUSTRALIA
1930

Yates' Book of Grazing Food Crops.

SPRING

1930



WHY IT PAYS TO USE RE-MACHINED SEED

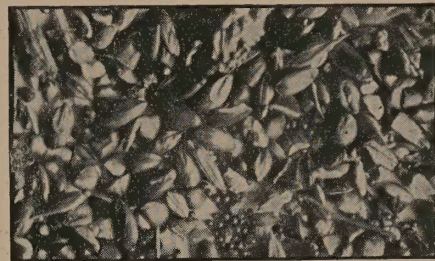
FARM DRESSED SAMPLE



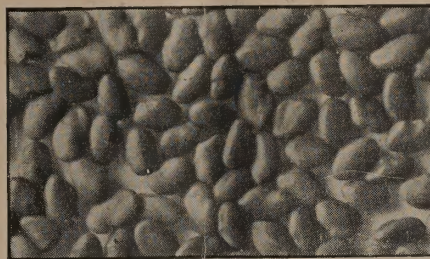
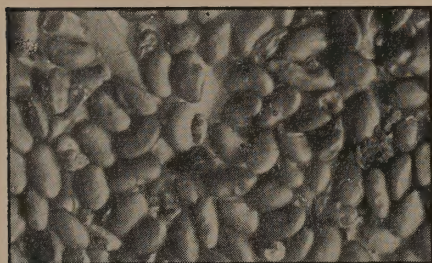
YATES' RE-MACHINED AND TESTED SEEDS



WEEDS, IMPURITIES AND DIRT REMOVED



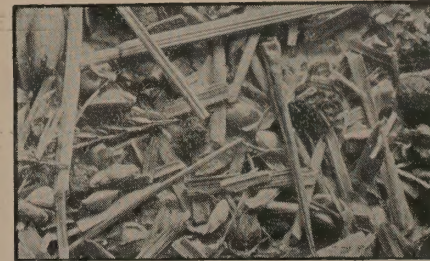
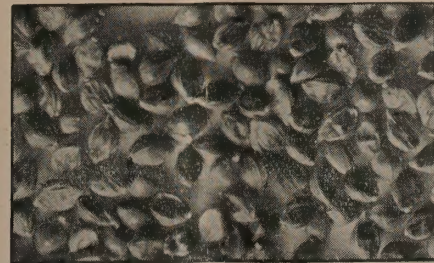
SUDAN GRASS—TWICE NATURAL SIZE



LUCERNE—(YATES' A.Y. BROADLEAF GIANT UPRIGHT)— $2\frac{3}{4}$ TIMES NATURAL SIZE



MAIZE (HICKORY KING)—NATURAL SIZE



JAPANESE MILLET—TWICE NATURAL SIZE

YATES' Book of SPRING, 1930 FODDER & GRAZING CROPS

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Building Up Reserves Again

FOLLOWING the very dry period which was experienced over the greater part of the State during the summer and early autumn, it is of prime importance that farmers take steps to build up again their reserves which in many cases were practically exhausted.

There is a wide range of fodder crops which may be used for this purpose, and from the detailed description given in this booklet interested planters may select the varieties and types most suitable for their requirements.

The current price list for all the within-mentioned lines is sent you herewith; if you are buying at some later date, please write for latest current price list, as new issues are published every three to five weeks.

ARTHUR YATES & CO. LTD.

ARTHUR YATES & CO. LTD.

SUPPLIERS OF RECLEANED AND TESTED FARM SEEDS

184-186 SUSSEX STREET, SYDNEY, N.S.W.

TERMS OF BUSINESS

Conditions of Sale and Non-Warranty

WE believe that all Seed Bulbs and Roots sold by us are of the description and kind specified by us at the time of sale but owing to the practical impossibility in many cases of being certain of this we give no undertaking that such Seeds Bulbs or Roots will correspond with the description under which they are sold and we make all sales subject to this condition. We further give no warranty expressed or implied as to their growth description quality or productiveness and will not be in any way responsible for the crop. If the purchaser does not accept the goods sold to him on these terms they are at once to be returned to us and any money paid to us will be refunded. **ARTHUR YATES & CO. LTD.**

PRICES.—We do not print prices in this Descriptive Catalogue as values fluctuate and some of our supplies have not been received into store at time of going to press. All charges are set out in our current Price List of Farm Seeds at time of booking order. The Price List now current is sent you herewith, and later issues will be posted promptly on receipt of enquiry.

DELIVERY.—We deliver Seeds on rail or wharf, Sydney, after which Seeds are on customer's account and at his risk. Orders sent by goods train are consigned carriage forward (except to unattended platforms), unless we are otherwise instructed at time of order. Delivery within the Suburban area of Sydney will be made of Farm Seeds, Seed Potatoes, Manures, and Garden Sundries at 1/- per parcel (not exceeding one cwt.).

FORWARDING INSTRUCTIONS.—Please give full and careful directions with each order and we will do our utmost to comply with them. When no instructions are received we send according to our judgment.

SOWING CALENDAR

Approximate Times for Sowing are denoted by—

† for moderately warm climates where Oranges thrive.

* for cool climates, say where English Fruits thrive.

The most suitable times for sowing are very largely influenced by local conditions and seasons, and these and any local experience available should always be taken into consideration.

Farm Seeds	Jan.	Feb.	Mch.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Farm Seeds	Jan.	Feb.	Mch.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Artichoke, Jerusalem..	..	..	..	..	..	†	†	†	..	..	..	..	Peas, Field, for Fodder	..	†	†	†	†	†	†	†	†	†	†	..
Barley, English ..	†	†	†	†	†	†	†	..	..	..	..	..	" " Soiling	..	†	†	†	†	†	†	†	†	†	†	..
Barley (other varieties)	†	†	†	†	†	†	†	..	..	..	..	..	" for Garden	..	†	†	†	†	†	†	†	†	†	†	..
Beet, Sugar ..	..	..	..	..	..	..	..	†	†	†	†	†	" Market	..	†	†	†	†	†	†	†	†	†	†	..
Beet, Silver (Field)	..	†	†	†	..	..	..	†	†	†	†	†	Pumpkin ..	..	..	..	..	..	†	†	†	†	†	†	..
Buckwheat ..	..	..	..	..	..	..	..	†	†	†	†	†	Potatoes ..	..	†	†	†	†	†	†	†	†	†	†	..
Canary ..	..	..	†	†	†	..	..	..	..	..	..	..	Rape ..	..	..	†	†	†	†	†	†	†	†	†	..
Carrot (Field)	..	†	†	..	..	..	..	†	†	†	†	†	Rye Corn ..	..	†	†	†	†	†	†	†	†	†	†	..
Cabbage (Cattle)	..	†	†	..	..	..	..	..	..	..	..	..	Rhodes Grass	..	†	†	..	..	..	..	..	†	†	†	..
Chicory ..	..	†	†	..	..	..	..	..	†	†	†	†	Sainfoin ..	..	..	†	†	†	†	†	†	†	†	†	..
Clover (Sorts)	..	†	†	†	†	..	..	†	†	†	†	†	Saltbush ..	..	..	†	†	†	†	†	†	†	†	†	..
Couch Grass..	..	..	..	..	..	..	..	†	†	†	†	†	Shallots ..	..	..	†	†	†	†	†	†	†	†	†	..
Cow Pea ..	..	..	..	..	..	..	..	†	†	†	†	†	Sheeps Burnet	..	..	†	†	†	†	†	†	†	†	†	..
Grasses, Pasture	..	†	†	†	†	..	..	†	†	†	†	†	Sorghums & Millets :	..	..	†	†	†	†	†	†	†	†	†	..
Kale, Thousand Headed	†	†	†	†	..	..	..	..	..	..	..	..	Fodder Varieties..	†	†	..	..	..	..	†	†	†	†	†	..
Kale, Chou Moellier	†	†	†	..	..	..	..	..	..	..	..	..	Millet, Broom	..	..	..	..	..	..	†	†	†	†	†	..
Linseed (Flax)	..	..	..	†	†	†	†	†	..	..	..	..	Grain Sorghums	..	..	..	..	..	..	†	†	†	†	†	..
Lucerne ..	..	†	†	†	†	..	†	†	†	†	†	†	Soy Beans ..	..	†	..	..	..	..	..	†	†	†	†	..
Lupins ..	..	†	†	†	†	†	†	†	†	†	†	†	Sudan Grass	..	..	..	..	..	..	..	†	†	†	†	..
Maize, for Grain	..	..	..	..	..	..	..	..	†	†	†	†	Sunflower ..	..	..	..	..	..	..	..	†	†	†	†	..
Maize, for Fodder	..	†	†	..	..	..	..	..	†	†	†	†	Swede ..	..	†	†	†	†	†	†	†	†	†	†	..
Mangel ..	..	†	†	..	..	..	..	..	†	†	†	†	Tagosaste ..	..	..	†	†	†	†	†	†	†	†	†	..
Mangel, Half Sugar	..	†	†	..	..	..	..	..	†	†	†	†	Tares ..	..	..	†	†	†	†	†	†	†	†	†	..
Millet (See Sorghum)	..	..	..	..	..	..	..	..	..	..	..	..	Tobacco ..	..	..	†	†	†	†	†	†	†	†	†	..
Mustard ..	..	†	†	†	..	..	†	†	†	†	†	†	Turnip (Field)	..	..	†	†	†	†	..	..	..	..	..	..
Melon, Cattle	..	..	..	..	..	..	..	..	..	†	†	†	Velvet Beans	..	..	..	..	..	..	†	†	†	†	†	..
Oats, for Fodder	..	†	†	†	†	†	†	†	†	†	†	†	Wallaby Grass	..	..	..	..	..	..	..	..	..	..	..	..
Oats, for Grain and Hay	..	†	†	†	†	†	†	†	†	†	†	†	(Danthonia)	..	..	†	†	†	†	†	†	†	†	†	..
Paspalum ..	..	†	†	†	..	..	..	†	†	†	†	†	Wheat, for Fodder	..	..	†	†	†	†	†	†	†	†	†	..
Peanuts ..	..	..	..	..	..	..	..	..	†	†	†	†	" " Grain	..	..	..	†	†	†	†	†	†	†	†	..

SEED MAIZE

All Samples Carefully Selected and Graded
Many of Our Important Varieties are now Grown from Pedigree Strains

MAIZE is a summer crop of the utmost importance in all districts where a reasonable fall of summer rains can be counted on. Even where the summers are usually on the dry side, Maize can be successfully grown if sown in drills, and carefully and regularly cultivated. In cool districts where Maize will not ripen, it is still a most valuable green fodder for early autumn use. We strongly recommend sowings in drills, even when only needed for green fodder or ensilage.

The extra weight of crop from a paddock of Green Maize sown in drills and cultivated will more than repay the extra cost of labour. Should the season turn dry a fair yield would result from cultivated Maize, whereas the broadcasted crop might be a failure.

By sowing the early maturing varieties it is possible to harvest a crop of grain in districts where the later maturing sort will not ripen. The best time for sowing Maizes varies somewhat in the different districts. For green crop or ensilage, Maize can usually be sown a month or so later than would be necessary for a grain crop.

Those who intend growing Maize for green feed are advised not to overlook the White Grained varieties, as generally, besides yielding a heavier grain crop than the yellow sorts of the same class, they are all exceptionally good green crop Maizes, producing a heavy leafy succulent growth.

Sow 8 to 12 lbs. per acre in drills, or one bushel to one-and-a-half bushels if broadcasted.

Our Method of Growing.—Realising the importance to growers of having really true strains of Seed Maize we commenced four years ago to organise the growing of our most important varieties by special farmers using pedigree seed. This enables the crop to be watched and plants not true to type are pulled out. This is the only method by which true Seed Maize can be grown and we know of no other seedsman in Australia who has gone into the matter so thoroughly. The Maize usually sold as Seed Maize is from chance lots picked up on the open market which look true, but nothing is known of their pedigree or the conditions under which they were grown.

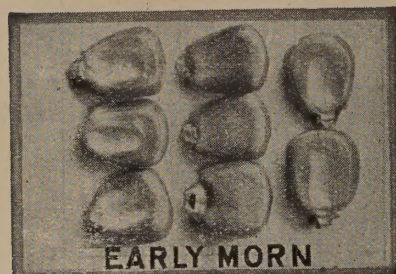
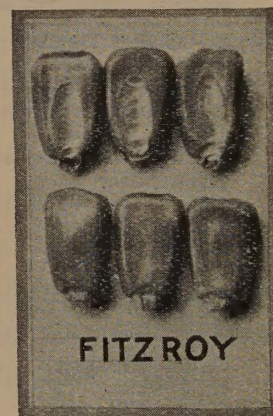
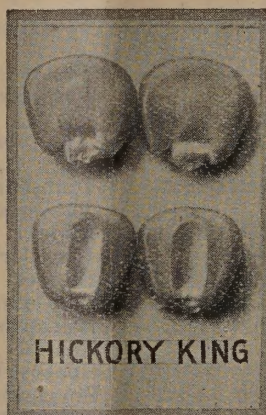
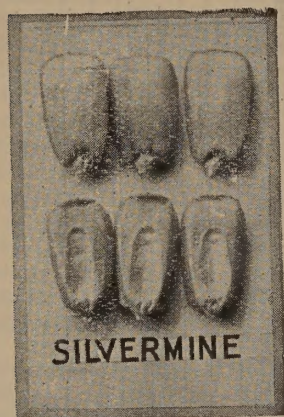
Pedigree Strains.—The seed from which our supplies are grown is carefully bred and is being improved year by year. At the present time many of our strains originate from pedigree seed supplied by the Dept. of Agriculture.

Cleaning.—All our Seed Maize is specially treated in our seed cleaning plant, and, as a result, our seed is noted for its quick and even growth.

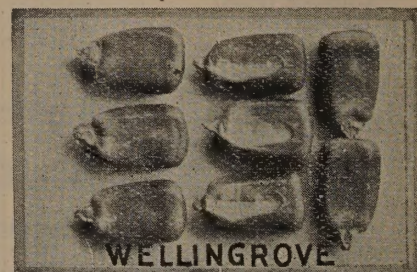
Apparent Variation in Type.—When inspecting our Seed Maize do not pay undue attention to the variations in type which are sometimes apparent. Occasionally our samples are not of good even type to look at; this is caused by unfavourable seasons which may, for example, prevent the cobs from filling out properly, causing an undue proportion of nubble end grains. Nevertheless these samples are wholly produced from pedigree seed.

Maize Varieties.—The general characteristics of Maize continually vary, and owing to the large number of individuals engaged in selections, the number of different types is very large. While to some extent they are all good, they are mostly only suited to the requirements of the man who grows them and generally speaking are not as good all round as the true standard sorts.

Comments by Dept. of Agriculture Expert.—Some of our crops growing for seed were inspected by Mr. Harrison, of the Dept. of Agriculture, who commented very favourably on the trueness of type and general evenness of growth.



Typical Grains of some of the most important Maizes described on the opposite page.



ARTHUR YATES AND CO., LTD.,

SEED MAIZE—(continued)

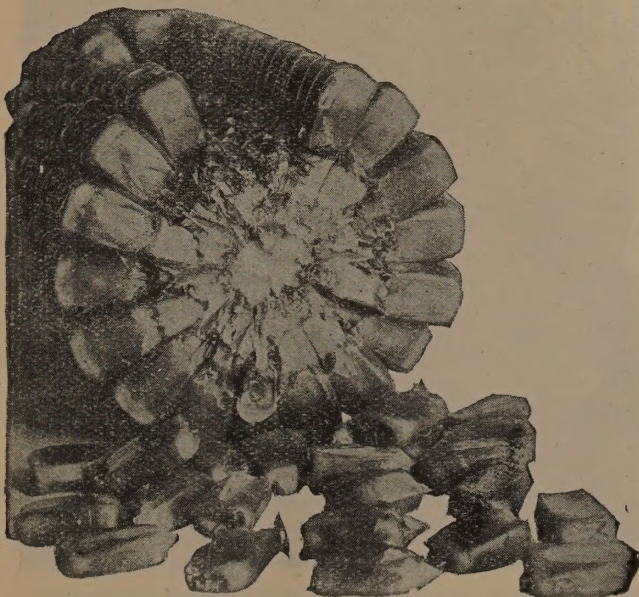
The six varieties listed below are all definite strains and different to each other, and in our opinion comprise a full selection of the best types for all general purposes. These are the varieties that we are principally working on, and we make every effort to keep the samples true to type and to their correct characteristics.

EARLY MORN—An exceptionally early yellow variety with a good but small grain. It is specially recommended for very cold districts and for very hot, dry districts where early maturity is essential. It is also very useful in the Maize growing districts for land which is wanted for autumn use, as, owing to its exceptional earliness, it can be harvested in plenty of time to work the land for autumn crops. In practice it is found that owing to its small growth it should be planted much closer than usual, when the smaller yield of the individual plants is made up by the larger number of plants per acre. A very good yield per acre is obtained by spacing the rows 30 inches apart and planting the seed every 18 inches in the row.

FUNK'S EARLY YELLOW DENT—One of the earliest of the Dent varieties maturing next after Early Morn. Very hardy and drought-resistant, particularly in inland districts where the atmosphere is very dry. Especially recommended for the tablelands and slopes. The best early variety for grain except where extra earliness is required.

SILVERMINE—The earliest white grain, deep and solid, excellent for early green fodder. Very hardy and drought-resistant, also gives good yield of grain. In our opinion this is by far the best of the early White Dent varieties.

WELLINGROVE (or Early Yellow Dent)—Medium season, heavy cropping Dent variety, giving medium size crop of fairly thick moderately broad grain. Is used to a fair extent on the tablelands and is also suitable for the Western Slopes. Matures a little later than Funk's Early Yellow Dent and will probably yield a little better on that account.



A nice cob of Fitzroy Seed Maize

HICKORY KING—The popular main crop white variety. Very broad grain, is exceedingly good for green fodder, specially for the highlands, as the variety suckers freely. It is also a heavy yielder of grain in a good district and the most popular among the manufacturers of maize food products. Good samples nearly always command a premium for this reason.

FITZROY (or Improved Yellow Dent)—A variety which is becoming extremely popular both as a good yielder of grain and for green fodder and silage. Grain is moderately thick, broad and deep, and a bright colour, which makes it very attractive. The standard main crop maize for true maize districts, becoming more popular every year, exceptionally heavy yielder of nice moderately sized bright coloured grain carried on a fine cob. In maize competitions both for grain and fodder this variety consistently leads.

This subsidiary list contains other standard sorts which are useful for the purposes mentioned against each.

Small Leaming.—A very popular mid-season variety on the North Coast, gives a fine early green crop. We usually have the yellow grained sort and may have the red.

Small Red Hogan—A fine medium early green crop variety.

Ninety Day Flint—An early flint, and an old favourite for green fodder. A good early green crop variety.

Large Red Hogan—A late variety which has been very successful on the Macleay River, N.S.W. The grain of this variety is exceedingly heavy.

Yellow Hawkesbury—Deep, broad grain, splendid in warm districts; heavy cropper.

No. 2 White Regraded (For Green Feed Only).—Re-cleaned maize for broadcasting for green feed.

No. 2 Yellow Regraded (For Green Feed Only).—Re-cleaned maize for broadcasting for green feed.

"FARMER'S FRIEND" 1-HORSE CORN PLANTER

This Machine opens the drill, drops the grain, and covers at one operation. Grain can be dropped any desired distance apart, and the depth regulated at will. We supply with each machine three plates, and a dummy to drop corn 10 inches to 40 inches.

In addition the machine is built to take a fertiliser attachment which will drop from one to four hundred pounds per acre. Prices on application.

YATES' HAND-PICKED SEED POTATOES

As our stocks of Seed Potatoes will be practically exhausted when this booklet is published we do not give particulars of varieties. Customers are asked to write for special Potato Price Lists in the early part of July.

In favourable years we also usually have supplies of the popular varieties during the month of February. Write us then.

SORGHUMS

IN districts where rainfall is a little too low for maize, sorghums have their particular value. They have wonderful adaptability to different soils and climates, and will produce big yields of splendid fodder where maize would fail, and, in addition, the feed value of the grain is almost equal to that of maize.

The early varieties grow quickly, even on poor land and under droughty conditions, and give green feed when most other things are withering. The late sorts grow under similar conditions, and stand well into the winter—even when the flag is frosted the stalks retain their succulence and sweetness—and provide a very palatable and fattening fodder when it is most acceptable.

Many farmers are reluctant to grow Sorghum for fear of poisoning their stock, but Sorghums are too valuable to exclude, and if the following is noted, they can be fed to stock with perfect safety. Firstly it has its best feeding value when the seeds are just hardening, and at this stage of growth there is no danger of poisoning unless frosted or stunted. Most cases of poisoning occur when the plants are half grown and checked by frost or dry weather. The certain method, however, of avoiding trouble is to cut the crop and allow it to wilt for some hours before feeding.

For ensilage, experience shows that Sorghum should be fairly mature before cutting. The stalks may look rather dry, but Sorghums should not be

cut for silage until the seeds are hard. If cut too early the silage is apt to be acrid and inferior to that cut at the right time.

The earliest sowing of Sorghums should be made directly the frosts are over, and the second crop may be planted up to the end of January, but November and December are considered the best months.

In rich, moist land, and where fineness is desired, up to 50 lbs. can be sown broadcast per acre, but in ordinary situations 30 lbs. is ample; it is a good method in such land to sow in drills 3 feet apart, and keep the land between the rows cultivated. In drills, about 10 lbs. per acre is sufficient. Prices vary with the market.

VARIETIES

WHITE AFRICAN—A recent introduction which is very late maturing and requires a very long season. The yield of fodder is enormous and it will retain its sweet juicy succulence right through the winter. For this reason it is an extremely valuable introduction as it will provide wonderful milk producing or fattening fodder right through the winter until the spring growth starts. As it is such a late variety it must be planted as soon as possible in the spring after frosts. Farmers who have not tried this variety and who are in districts where Saccaline matures in plenty of time should make trials.

LATE SUMAC (Collier)
—A recently introduced variety of special merit, somewhat similar to Saccaline but much more resistant to red stain or rust; its fodder yield is exceptionally heavy. Since it was introduced this variety has become widely known and is being used more and more each year; it retains its succulence well.

OXLEY (Early Sumac)
—This is probably the earliest of the sweet varieties and a very vigorous grower it is proving a good sort and is excellent where the seasons are short or late planting is necessary.

COWPER (No. 61)—
Rather similar to Saccaline. It is a sweet, succulent, heavy yielder, and is disease-resistant. Matures slightly earlier than Saccaline, but is more frost-resistant and stands longer into the winter months.

SACCALINE—A late variety exceptionally rich in sugar, very palatable and fattening to all classes of stock. It keeps its succulence well into the winter and does not become pithy for quite a long time, therefore it can be left standing in the field right through the winter and cut as required.

One of the very valuable habits of Saccaline is its persistent ratooning or throwing up of new growth from the roots when the matured stalks have been cut. It has in several instances stood through the



[Dept. of Agric. Photo]
An exceptionally fine crop of Saccaline in the Nowra (South Coast) District.

FOR PRICES SEE CURRENT PRICE LIST—POST FREE

ARTHUR YATES AND CO., LTD.,

SORGHUMS—(continued)

winter, and then when all cut thrown up a fresh crop of fine stalks the following spring, and grown well through the second summer.

PLANTER'S FRIEND—An old standard late season variety which stands well into the cold weather; it does not retain its succulence as well as newer varieties by which it is being superseded but for certain purposes it is good.

EARLY AMBER CANE—The earliest and one of the best varieties under dry conditions. It is only slightly Saccharine and is largely used for grazing or for sheep feed, etc., for which it is extremely good. It is not a good variety for growing to maturity and using for winter feed as it becomes pithy quickly after maturing.



Sorghum under test on our trial ground.



GRAIN SORGHUM

In districts where the average rainfall is too limited for the regular growing of Maize, Grain Sorghum is worthy of trial in crop rotations. It has these characteristics:—(1) It will thrive on a lower rainfall than Maize. (2) The grain has a feeding value nearly as great as Maize. (3) The weight of grain produced is good, under fair conditions up to 40 or even 50 bushels per acre may be obtained. (4) It will succeed in soils too poor for Maize. (5) It can be used for fodder or for ensilage when the seed is in the "dough" stage. (6) Even when the seed has been harvested the foliage and upper stems are of some value as roughage. (7) Unlike other Sorghums it is non-saccharine.

Feterita—The most valuable and most used variety for average inland conditions.

Mangolds, Sugar Beet, Field Carrots

Mangolds & Sugar Beet

Wonderful milk producers, and yield immense crops. Sow about September-October; in warm climates an autumn sowing will give a fine crop. Plant in well worked clean land, in drills 30 inches apart, to allow horse cultivator to work and when up hoe to remove any growth of weeds, and if necessary thin out to allow the roots to develop. Five pounds per acre of Mangolds and about eight pounds per acre of Sugar Beet are fair sowings.

YATES' MAMMOTH LONG RED—A very select stock. The roots are of excellent quality, clean, smooth and free from fangs; flesh close grained and full of saccharine. The heaviest cropping Mangold grown.

YATES' CHAMPION YELLOW GLOBE—A very select stock, small top; flesh close in texture, excellent feeding quality.

GOLDEN TANKARD—An excellent keeper. The roots medium size, with deep yellow flesh, and contain high percentage of saccharine.

SUPPLIERS OF RE-MACHINED AND TESTED FARM SEEDS

Long Yellow—An excellent variety, very heavy cropper.

SUGAR BEET WANZLEBEN—Half long white roots, sweet and crisp.

GIANT HALF-SUGAR MANGOLD—We keep the two varieties, White and Rose. They are sweeter than the ordinary Mangold and larger than Sugar Beet, combining the quality of the Beet with the weight of crop of the Mangold. Tested against Sugar Beet it yielded twice the crop. Intermediate in size, averaging about one foot in length.

Field Carrot

Valuable for all classes of stock, particularly horses. Sow any time in spring or early summer, when the weather is favorable, at the rate of four pounds per acre in drills 30 inches apart for horse work or closer if for hand work.

WHITE BELGIAN—Grows well out of the ground, so it can easily be pulled by hand.

ORANGE GIANT—A rich orange red variety, very handsome and smooth, producing large crops.

SUDAN

A Summer Fodder Crop for Dry Areas

Coming from Northern Africa, this grass has inherited a resistance to drought which even exceeds that of many of our native grasses. Mr. E. Breakwell, in his book, "Grasses and Fodder Plants," says: "It may be said to be the most drought-resistant grass yet grown in the western districts . . . Even on a dry seed-bed the seed will germinate and produce healthy seedlings on fifty points of rain." It is a persistently heavy cropper, with a high feeding value, and one of the very best hay crops.

AS a summer crop Sudan Grass has come into striking prominence during the past few years. We believe that this grass is destined to take a very high place among our summer fodder crops. Though not so heavy a yielder in its primary growth as some of the Millets, after the first crop is taken off, Sudan Grass stools quickly and comes again and again in a miraculous manner. The rapidity of growth and weight of crop of the second, third, fourth, and in some cases fifth cuts surpasses anything else among the summer fodders. The correct stage at which to cut Sudan Grass for hay or chaff is when the crop is flowering and before the seed has formed.

Sudan Grass requires a good seed bed and a certain amount of moisture in the soil to germinate quickly and evenly, but, once established, it has proved itself to be of great drought resistance, in fact, it can be accepted that Sudan Grass is probably the only summer fodder crop that will give consistently good results in the western districts of N.S.W. where, in good seasons, up to 2½ tons of hay per acre are obtained. It makes a good quality silage that is a most effective stand-by for all classes of stock. Its palatability, green, or in the form of hay, is indicated by the greedy manner in which all classes of stock eat Sudan Grass. Its fodder value, tested under chemical analysis, is stated to compare

most favorably with wheaten or lucerne hay. Sudan Grass stands grazing extremely well, and it is probably the most valuable of the summer-growing fodder crops for this purpose.

A member of the Sorghum family, Sudan Grass is an annual and must be sown down each year. It is most sensitive to frosts, and should not be sown until all danger of such is over, and then as early as possible so as to ensure a good growth and a strong stand by midsummer. Prepare the land as in the cultivation of wheat or sorghum. Sow either in drills or broadcast. If in drills, about eighteen inches to two feet apart, sow 6 lb. to 8 lb. to the acre. This allows of cultivation between the young plants, assisting materially in helping on the young growth by conserving the moisture and checking the weeds. Probably the most practical method of sowing this crop on large areas is through the ordinary grain drill at 8 lbs. to 12 lbs. per acre, or falling that, broadcast at the rate of 12 lbs. to 16 lbs. per acre. Its value as a grazing crop is very high, but will be enhanced by growing with Cow Peas or Soy Beans where the climatic conditions permit.

As will be readily understood in such a quick-growing and vigorous plant, Sudan Grass responds very noticeably to fertilizers. An application of from 1 cwt. to 2 cwt. of superphosphate with the seed is strongly recommended.



Harvesting Sudan Grass for Hay in a Western District.

ARTHUR YATES AND CO., LTD.,

GRASS



Harvesting Sudan Grass for Silage

Sudan Grass is not a Pasture Grass

Although Sudan Grass is such a wonderful crop for summer feeding, it should not be confused with the class of plants known as Pasture Grasses, which are either perennials, or annuals which seed themselves down every year.

Sudan Grass does not seed itself down in the ordinary sense of the term, although it produces enormous quantities of seed in favorable seasons.

As a feeding-off crop Sudan Grass is characterised by extremely high palatability and nutritive qualities, and the amount of stooling is considerably increased by grazing. It will carry two sheep to the acre on the slopes and tablelands without irrigating, while both sheep and dairy cattle are extremely fond of it.

A Word on "Stock Poisoning"

LITTLE RISK WITH SUDAN WHEN RELIABLE SEED IS USED

There is much misconception about poisoning of stock by Sudan Grass, and we feel that a little space allowed here for a brief statement of the facts will be well used.

In tests carried out by the Department of Agriculture over a series of years, using a pure strain of seed, no trouble from poisoning has ever occurred. This in itself would show that the risk, if any, is infinitesimal when using a pure strain.

But Sudan Grass is very closely related to the Sorghums and will readily cross with them if grown nearby, forming a hybrid, which is quite distinct from ordinary Sudan Grass, and shows broader leaves, coarser stems, more bunchy seed heads, and more vigorous growth. These hybrids are usually easy to see growing in the crop, and, if present, should be rooted out. Sweet Sorghums are definitely known to be poisonous under certain circumstances, and so it is not hard to understand that a hybrid would probably show the same tendency.

Although we cannot and do not guarantee that the Seed we offer is free from hybrid strains, we wish our customers to know, that realising as we do the importance of this matter, we take the greatest care in the selection and examination of our samples, besides making exhaustive enquiries about the origin

SUPPLIERS OF RE-MACHINED AND TESTED FARM SEEDS

and place of growth, and furthermore, every sample is passed by the Department of Agriculture as free from injurious Sorghum Hybrids.

Finally, in considering the advantages and disadvantages of Sudan Grass as a fodder, we would suggest that the slight risk involved is far outweighed by the great economic value of, and the big returns so easily obtained from, this wonderful summer fodder crop.

Order early—sow as soon as frosts are over, to get a long growing season.

**FOR PRICES, SEE CURRENT LIST.
POST FREE.**



Making pit silage with Sudan Grass.

BUSHEL WEIGHTS

We show herewith the weights per bushel as standardised under the N.S.W. Weights and Measures Act. Many of the lines mentioned (such as Clovers and some of the Grasses) are not usually priced or sold by the bushel, but in all cases where customers order bushel weights we will reckon the number of pounds to the bushel as stated herewith.

	Lbs. per Bush.		Lbs. per Bush.
BEANS	60	HUNGARIAN	
BARLEY	50	MILLET	60
BROOM MILLET . .	50	LUCERNE	20
BUCKWHEAT	50	MAIZE	56
CLOVER:		OATS	40
Red or White . . .	20	PEAS	60
GRASSES:		RYE CORN	60
Couch	20	SORGHUM	60
Cocksfoot		TARES or	
Paspalum		VETCHES	60
Rib and Rye		WHEAT (Seed) . .	60

COMMENTS FROM CUSTOMERS.

Mr. H. C. C. ———, MORANGARELL.

"The Sudan Grass I grew from your seed last June was very good, and I find that it is a splendid thing for thatch for Stacks or Sheds as it won't let rain in, and I believe it will last for years, as the stems are strong, and as you get such long lengths it beats all the other thatches hollow."

Mr. G. F. S. ———, LAVINGTON, Via ALBURY.

"I am forwarding a couple of snapshots of my Lucerne plot at Lavington, grown without water from seed procured from you. The second cut is illustrated, the third was just as good. I obtained five cuts last year. It was manured after first cut with Blood and Bone and Superphosphate, about 150 lbs. per acre."

As a Follow-On after the Spring "Flush"

Use MILLETS

As a catch crop to augment the natural grazing many farmers require a quick-growing fodder to give a "green pick" when the pastures are ripened and dry. The need is for something that will require little labor in cultivation or harvesting. Some of the MILLETS are eminently suited for this purpose and they will grow well on even mediocre land. The crop may be fed off green and then allowed to grow up again for hay; where it is fed off the stubble should be harrowed to loosen the soil and conserve the moisture. As a "follow-on" for milking cows and growing lambs after the spring grass has commenced to dry this is a most suitable crop. Sow broadcast or through an ordinary grain drill set for suitable depth as mentioned below.



VARIETY TRIAL OF MILLETS
ON OUR TESTING GROUND

JAPANESE MILLET As a fodder crop this is by far the most important variety of Millet. It is a remarkably quick grower and comes again rapidly after being fed off, at the same time stooling out strongly. It grows up to 3ft. 6in. or more high and will stand a dry weather "pinch" much better than any of the other varieties. In comparison with Sudan Grass it is a much quicker grower from the start, enabling immediate advantage to be taken of favorable rain storms, but it is thought that the eventual yield of Sudan Grass would be much greater since it will make fresh growth after being fed off many times more than will the Millet.

Hungarian Millet Another very valuable summer green crop. Sown in the spring or early summer it will give a wonderfully heavy crop of hay or ensilage. For hay purposes the Hungarian Millet is much superior to other varieties. It is a quick grower; in fact, in suitable situations, if the seed is sown in September, it will mature early enough to obtain a second crop of hay off the same land. Twelve pounds of seed per acre in drills, or 20 pounds broadcast, is a fair sowing. When in bloom it should be cut and treated as other hay.

Broom Millet We stock the best Hunter River grown long hurl variety.

Pearl Millet This is a very tall growing variety, suitable for hay making. If sown in rows and intercultivated it will attain a height of 8 to 10 feet. It has slender stalks and slender long bladed leaves, making it very suitable for hay, and should be cut while young and tender. Sow 8 to 10 lbs. per acre in drills, or up to 20 lbs. broadcast.

White French Is smoother and of slightly more succulent foliage, and grows up a little higher, but does not stool quite so well. This Millet also recovers very quickly after feeding off or cutting.

ARTHUR YATES AND CO., LTD.,

For Nutritious Greenstuff

—Soil Renovation—Green Manure

GROW LEGUMES

While all these crops are of very great value as feedstuffs in some form or other, they have the additional advantage of being the best of "Soil Renovators," and of maintaining and increasing the fertility of the soil. Their value for rotation, and also for green manure, can hardly be over-estimated.

SOY BEANS

Whereas the value of Cow Peas are well known and appreciated by most mixed farmers, owing to climatic conditions their general use is confined to the coastal parts of Northern New South Wales and Queensland. Soy Beans, while giving much the same sort of crop, do well under a much wider range of climatic conditions, and will thus, when better known and understood, be used to a very large extent; in most cases, however, this crop must be grown more than once on the same land to obtain the best results, as it takes a little time for the nitrogen fixing bacteria to develop.

The wider use of Soy Beans will enable the farmer to have a summer growing legume crop which will give a hay of the feeding value of lucerne and clover if grown alone, or they can be used to bring up the feeding value of the more generally used summer crops by planting a small proportion with the other seed; the farmer will thus get the wonderful feed value of the legume in summer as well as winter. When trying Soy Beans for the first time, too much reliance should not be placed on the results of the first crop, as owing to the special soil bacteria necessary for their best growth, the following crops are nearly always very much more vigorous than the first. Sow the seed about three to the foot in shallow drills two and a-half feet apart after danger of frost is over.

We can supply the following varieties:—

MAMMOTH YELLOW—An old standard variety. One of the best for hay or seed. Very vigorous, growing over 3 feet, and thus gives a very large bulk of feed. It is medium late maturing.

LAREDO—A medium late maturing variety giving exceptionally heavy bulk of feed. Laredo has slender branches and thus gives very good quality hay. In America this variety is largely replacing the Cow Pea, and we would strongly recommend it for trial on the coast of Northern New South Wales and Queensland.

BILOXI—An upright variety, growing 4 to 5 feet high, covered with dense foliage, which does not shed easily. Gives a very heavy yield of beans and is therefore an excellent variety for growing for pigs. It is a very late maturing sort and needs a long season to make its full growth.

SOY BEANS FOR HAY

It is chiefly as a hay crop that Soy Beans are grown in the colder States of America. These States have their counterpart in our Tableland districts. On sandy soils in many of the Northern States of America Soy Beans are of great and increasing importance as a source of legume hay for stock feeding, and even on heavier soils Soy Beans are largely grown as an emergency hay crop on land where Clover fails. Soy Bean hay can be successfully grown on soils deficient in lime, and so acid that the common Clovers cannot be grown with success, if at all.

Clover has not entered into our Tableland farming practice in New South Wales, principally because of lack of knowledge concerning its many merits, but partly because of its failure in some years owing to dry weather. In such years, or when the planting of the usual Oaten Hay crop is delayed too long, Soy Beans may well occupy part of the land as an emergency hay or summer fodder crop for farm use.

VELVET BEANS

A valuable plant for moist warm climates, such as the North Coast of New South Wales and the Coastal districts of Queensland.

When conditions are suitable, it is the rankest grower and heaviest yielder of any of the legumes. As a soil renovator it is excellent, but it will be valued even more for the magnificent grazing it affords and for the high feed value of the Beans. It is also recommended as a very suitable crop to sow with maize, either for grazing or for ensilage; in this case the Beans should be sown about a month later than the maize. With this method the vines are supported by the maize stalks, and an enormous amount of fodder is obtained. If sown alone, plant in rows four feet apart and about 18 inches between the seeds, or two or three seeds in hills four feet apart in rows five feet apart.

We have supplies of the following:—

90 DAY SPECKLED—One of the earliest sorts and therefore suitable for the lower coastal districts, especially for forage and soil improvement.

OSCEOLA—Another early sort with large pods and very vigorous. Comparatively free of furze on the pods.



Biloxi Soy Beans growing well at Grafton.
Note the tremendous weight of crop.

The making of hay from Soy Beans in the autumn comes at a comparatively slack time on the farm, a decided advantage from the standpoint of labour distribution.—(H. Wenholz, B.Sc. (Agr.), in the Agricultural Gazette of N.S.W.).

SUPPLIERS OF RE-MACHINED AND TESTED FARM SEEDS

LEGUME CROPS—(continued)

PEANUTS

As well as being in great demand for human consumption, the Peanut is being increasingly used as a stock fodder, especially for pigs. This crop may be successfully grown in any except the coldest parts of the State. The plant grows usually from 12 to 18 inches high, and has the peculiar habit of maturing its seed in the ground. They require a rich, sweet soil, which should be well worked to a depth of four to six inches, but kept firm and solid under that depth; this keeps the nuts near the top and so facilitates harvesting. Sow 30 to 40 lbs. of nuts, or say 10 lbs. shelled seed per acre. When ripe, lift the plants and harvest the nuts, which are produced below the ground. The Peanut plant may be grazed, the top made into hay, or used as a soil renovator; and is valuable as a dry farming crop. We usually have in stock supplies of tested growth of the Red Spanish and White Spanish varieties. Customers are asked to state their preference when ordering. Both these are of the small podded type and are very popular in the main growing districts. On account of the upright bushy growth it is necessary to throw a little earth on the centre of each plant to induce the vines to penetrate the soil. This greatly increases the yield.



[Dept. of Agric. Photo

Velvet Beans are tremendous yielders and the food value of the beans is extremely high.

COW PEAS

Cow Peas form perhaps the most valuable crop for green soiling that we have for the coastal and warm parts of this country. They are extensively used for this purpose in the sugar fields of Queensland, and will doubtless form the main legume for the crop rotation now being found so necessary in connection with maize growing, especially on our North Coast. Cow Peas make excellent pasture, fine hay and splendid ensilage (especially in conjunction with other green crops), and as well as all this do more than almost any other crop to improve the soil. The Cow Pea is an annual, making its whole growth during the summer months. In general appearance, habit of growth and character, and composition of seeds, it resembles fairly closely the ordinary Kidney Bean. We urge farmers to consider the advantages of sowing Cow Peas with Maize, Sorghums and Millets, either for green fodder or ensilage. Not only will the combined crop make a better balanced ration, but the total yield will be increased and also the condition of the land improved. Sow in spring after frost is over in drills 3 feet apart and drop peas at intervals of 9 to 12 inches in the drills. Sown in this manner, 10 lbs. of seed should well cover an acre; broadcast $\frac{1}{2}$ to 1 bus. of seed is required. Supplies of Cow Peas, owing to difficulty of harvesting, are always uncertain, and prices vary considerably. We expect to have the Black Seeded and the Clay Colored.

N.Z. BLUE LUPINS

For green manuring these provide one of the best crops for ploughing in, especially in our cooler districts. When practicable we recommend autumn sowing, but they will succeed if sown in early spring. Lupins grow very rapidly and produce an immense amount of top. We do not recommend these N.Z. Blue Lupins as a fodder crop, but for green manuring only. Sow at the rate of 2 bushels per acre. For small trials 3 lbs. will sow an area of 100 square yards (10 yds. x 10 yds.). They must not be confused with the West Australian Lupins, which are only used on poor sandy country with 14-15 inch rainfall and which only grows rough scrubby feed.

MAURITIUS BEANS

An excellent green manuring crop largely grown in the sugar cane districts. Stocks very uncertain.



[Dept. of Agric. Photo

Cow Peas growing in a Citrus Orchard.

Grazing Qualities of Summer Legumes

Some interesting trials have recently been conducted at the Wollongbar Farm regarding the grazing qualities of summer legumes, including Cow Peas, Soy Beans and Velvet Beans. Velvet Beans produced the greatest weight of fodder, followed closely by Cow Peas, then Soy Beans, while from the point of view of palatability Cow Peas were placed first.

It is considered that there is a big future for these crops as they make possible the cheap and easy production of fodder rich in protein.

LEGUMES FOR PIGS

Although it was once thought that pigs were not adapted for grazing, in actual practice it is found they thrive on almost all green crops, especially if a proportion of grain is fed at the same time.

Of the green crops Lucerne is the most valuable, but where an annual crop only is needed, leguminous crops, such as Clovers, all types of Peas and Beans, Tares, etc., are strongly recommended.

All these crops have a high protein content which is essential in a ration for pigs because they are such quick growers.

ARTHUR YATES AND CO., LTD.,

FIELD PEAS

This is a crop which we consider does not receive the attention it deserves. It is an excellent fodder for sheep, pigs and other stock, but we think its main value is when grown as a combined "Legume-cereal crop." For this purpose Field Peas are excellent sown with oats or wheat. If sown early with oats they can be grazed off once or twice during the winter and then let go dry for hay. The addition of the pea straw to the oaten hay makes a much more balanced ration and is very palatable to stock.

If sown alone they may be grown to maturity for topping off pigs, or they may be cut green, just after flowering, for cattle or pig feed.

This crop is classed among the best of the soil improving crops. Even if only the roots are ploughed in, it helps to maintain the fertility of the soil.

Field Peas, though not so hardy as Tares or Vetches, are earlier maturing, usually cheaper in price, and one grower reports that when grown with a cereal it will stand the trampling of grazing cattle better than will tares under similar conditions. Field Peas are not a summer crop and must be sown in the autumn, except in cool tableland districts, where early spring sowings are also made.

Sown alone $1\frac{1}{2}$ to 2 bushels per acre broadcast, or say, 30 lbs. in drills 2 feet apart, is sufficient.

Sown with a cereal crop try $\frac{3}{4}$ bushel Field Peas with $1\frac{1}{2}$ bushels oats or wheat per acre.

We usually stock the Grey, Blue, and Dun varieties of Field Pea, the Grey and the Dun being perhaps the most popular.



[Dept. of Agric. Photo]

A beautiful crop of Dun Field Peas

KUDZU VINE

(*Pueraria Thunbergiana*)

We have had several enquiries for this. It is a perennial legume best adapted for poor soils near the coast. We can only supply in packets, and recommend that the seeds be sown in a good patch. The plants will quickly grow and send out long runners which root at every joint. These can then be severed and transplanted, and the required area thus quickly covered. Packets 6d.

SOWING RAPE

Sowing Rape is one of the most profitable stock fodders for fattening. In addition it is a very useful rotation crop and soil renovator on account of its vigorous, deep rooting habit, which penetrates subsoils to a considerable depth.

RAPE is the great fodder plant for sheep husbandry in Australia, and with the widespread recognition of the value of combining sheep and wheat, Rape is now becoming a very important crop on the wheat farm, not only for sheep feed, but also a rotation crop and for renovating wheat land. The cost of the seed is so little, and the cultivation so simple, that it cannot fail to be much more largely used.

If paddocks, which are showing signs of exhaustion under wheat, are ploughed and a crop of Rape sown, say early in March, it will give an enormous quantity of sheep feed during the winter and following spring, which will fatten ten or twelve sheep to the acre for some months. If, during the following summer, the remains of the crop and sheep droppings are ploughed in, the land will be very much enriched, and when sown with wheat again, a greatly increased yield will result. It is easy to see how profitable it is to utilise the land in this way. Even if, owing to unfavorable seasons, the crop of Rape comes to nothing, there is very little lost as the cost of seed is so little. Rape is equally good for pig feeding or even cattle, so long as it is not given in quantity to milking cows, as it is apt to taste the milk.

Sheep put on to Rape fatten very quickly; even old broken mouthed ewes, that would starve on an ordinary pasture, very soon put on flesh, and are fit for the butcher. They should, however, be sent to market as soon as they are "topped off," as if put back on to grass they very soon lose condition again.

Poultry farmers are finding a small patch of Rape a valuable asset, and for this purpose small suc-

cessional sowings should be made through the autumn and again in the spring.

Some growers prefer to sow it with Rye Corn, say half-bushel of Rye and two pounds of Rape; others sow it with Mustard, using half-pound with four pounds of Rape per acre. The inclusion of Mustard corrects the tendency of Rape sometimes to scour.

We recommend sowing in February, March or April, after the good autumn rains, but as early as possible after the middle of February; spring sowings are sometimes made in cold tableland climates where the summers are reasonably cool and aphids is not likely to be troublesome. The land should be deeply ploughed and well worked, but if sown on stubble land, it would be enough on light soils to stir thoroughly the surface with a disc harrow; but ploughing and harrowing would be much better still. Sow three pounds per acre in drills, or four to six pounds broadcast (if drilled, so much the better). Where a machine is not available it may be sown broadcast by mixing with several times its bulk of dry soil, which will materially help to distribute the seed evenly. We do not recommend that Rape should be sown on poor hungry land, as it will not succeed; it requires good soil and deep cultivation, and will well repay the labor expended in preparing the land thoroughly.

As there are several varieties of Rape, some very much better and yielding larger crops than others, also as many of the cheapest samples are tainted with wild mustard or yellow weed, we would strongly advise growers to buy our re-cleaned seed, and note that each bag is sealed and branded.

SUPPLIERS OF RE-MACHINED AND TESTED FARM SEEDS

SEED GRAIN for GREEN FODDER



Re-machined and Tested Seeds grow strong, even, healthy crops.

THE value of using only the heaviest and purest samples of Seed Oats or Seed Wheat for Green Fodder, has now been proved many, many times worth the slight extra cost per acre for such seed. In unfavorable seasons it may mean the difference between a crop and a failure.

With the high cost of labor and high land values, it becomes more and more necessary to strive after the biggest yield and highest cash returns possible from every acre of cultivated land. To attain this it is essential to have well prepared land and strong-growing, healthy pure seed.

Yates' Re-machined and Tested samples, as illustrated above at the top, are prime seed heavily-graded and re-machined and tested for germination. Note (at bottom of illustrations) the large quantities of weak, shrivelled and broken seeds, and foreign weed seeds which have all been removed. Yates' Re-machined and Tested Seed Grains produce strong, even, healthy crops—the kind that make farming a payable proposition.

SEED OATS

We have found Algerian Oats to be by far the best variety for grazing; being of finer growth it stands a good deal of trampling, and its spreading habit and strong root growth prevent it from being easily pulled out. Where owing to late sowing being necessary a quick-growing variety is needed such varieties as Sunrise and Mulga are by far the best. For spring sowing in cold districts White Tartarians are favored. We recommend that a dressing of 1 cwt. of Bonedust or Superphosphate be used, also five or six pounds of Clover seed per acre be planted with the Oats. This will give a more balanced ration and so increase the milk flow; it will also maintain the fertility of the land, and give a good stubble-feeding during the following autumn. If shut up in the early spring a crop of hay may be harvested in addition.

For cutting purposes some of the vigorous-growing early Oats like Mulga, Sunrise, etc., may prove superior in the milder climates; these are tall-growing and have fleshy stems, and come very quickly; in fact, they grow almost as quickly as Barley and are superior to it for feeding value. They will, however, not stand extremes of frost like the Algerians, and, on account of their coarse fleshy growth, do not stand trampling and hard grazing so well.

Varieties usually available: Algerian, Sunrise, Mulga, White Tartarian, Guyra, Ruakura, Black Tartarian, Dun, Heavy White, Heavy Black.

SEED WHEATS

Wheat is largely used for green fodder and for hay, as well as being the world's most important grain crop. It stands dry conditions better than almost any other grain, and is therefore of great value for fodder and for hay, as well as for grain in districts of low rainfall. It will often give good crops in seasons which cause oats to be a failure.

Thew and Florence are of a special value for green fodder under coastal conditions.

Sow up to 2 bushels per acre together with a dressing of 56 lbs. to 112 lb. superphosphate per acre, according to location and quality of the land.

Following are the varieties which are usually available, but as supplies are nearly always short of demand, early enquiries are invited.

Varieties usually available: Florence, Thew, Canberra, Soft Federation, Hard Federation, Yandilla King, Marshall's No. 3, Waratah.

BARLEYS

Barley is the earliest of the grain crops to mature, and in this earliness lies also its great value as a green fodder crop. It is one of the sweetest fodders grown, and is relished by all classes of stock.

For practical purposes the Barleys may be classed into three, namely:—Cape Barley, Skinless Barley, and English or Malting Barleys. Cape Barley is the one most generally used for green fodder; it grows very quickly, but as it is not so hardy as other grain, it is most suitable for early use in cold climates. Skinless is also a good variety, coming very early to maturity, and affording two cuttings; it should be grazed after each cutting; the close feeding seems to cause it to come again with renewed vigor. English or Malting Barley is usually grown for grain for malting purposes, but there are two varieties which absolutely stand out as green fodder sorts, viz., Tra-but and Pryor.

Trabut is a heavy yielder, and abundant stooler, maturing two or three weeks earlier than Cape. Pryor is similar to Tra-but, and is very leafy, with fine succulent stems.

These Barleys all make excellent silage. The addition of Field Peas when sowing makes a combined cereal-legume crop of high nutritive value.

Barley should be sown broadcast at the rate of 2 bushels per acre; if drilled, 1 bushel should suffice.

ARTHUR YATES AND CO., LTD.,

FODDER CROPS For SPECIAL PURPOSES



Sunflower in the field. Yields of 20 tons to the acre are obtained.

BUCKWHEAT (Japanese)—A splendid quick yielding fodder crop and valuable for fowls. Japanese is the largest and most vigorous variety. Sow 20 lbs. per acre.

CANARY SEED—So largely grown for bird seed. It may also be used for hay purposes, requires similar culture to wheat; sow 17-20 lbs. per acre. We have Queensland grown seed, and extra large seed, Morocco grown.

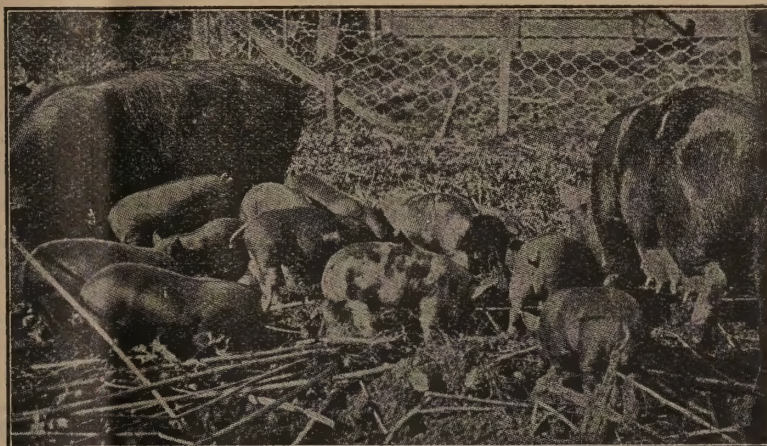
SUNFLOWER—Valuable, when growing, as shelter to young crops, and the seed forms a most excellent food for poultry and in fact all stock. Eight to twelve pounds will sow an acre in rows three feet apart, and it requires the same soil and climatic conditions as Maize. In U.S.A. it is now being used quite a lot for ensilage; it has been found of considerable value for this purpose. (Black Seeded or Striped).

MELONS, CATTLE—A mixture of suitable sorts. Generally the Cattle Pumpkins are to be preferred, but the Melons form a juicy stand-by fodder.

MUSTARD—For a quick green fodder for fattening lambs, Mustard can be recommended. Sow eight pounds per acre. It is also frequently mixed with Rape. It is ready a few weeks after sowing.

SILVER BEET—This plant is grown for the green tops, not for the roots, as with other Beets. It is found in New Zealand that the foliage is reproduced so quickly after being eaten down that it makes an excellent crop for sheep fattening. Plant in rows, 30 inches apart, so that the land can be hoed, and thin from 9 to 12 inches apart in the rows. Sow three to four pounds per acre.

SALTBUSH—This has been aptly described as the plant that makes fodder when feed is most needed. It is not difficult to raise from seed, cuttings or roots. Seed should be sown in the autumn or early winter, either direct or in a nursery bed and later transplanted. (Continued below illustration.)



Artichokes are unexcelled for Pig Feed.



Portion of a Paddock of Saltbush (*Atriplex nummularia*) on a Coonamble Station. It is reserved for use in drought periods.

(Dept. of Agric. Photo)

Saltbush—(continued)

On account of its thick succulent foliage it has proved very useful as a fire-break. We have two varieties:—***Atriplex nummularia*** (Old Man Saltbush), grows 6 to 10 feet high with numerous branches, and ***Atriplex semibaccata*** (Creeping Saltbush), specially suitable for sheep.

We think that greater consideration than hitherto might well be given this plant by graziers in our western slopes and plain country. One pound should seed about an acre.

SUPPLIERS OF RE-MACHINED AND TESTED FARM SEEDS

Jerusalem Artichokes for Pig Feed

These are similar to Potatoes, and require the same cultivation, but we would plant in rows two or three feet apart. A most desirable and delicate vegetable. They yield very heavy crops and are excellent for pig feeding, especially where pigs can be turned in to root them out (see photo on opposite page), their fattening value is 25 per cent. greater than potatoes. Four to six cwt. will plant an acre.

A Tuberous Crop that is a Gold Mine

It used to be thought that dairy by-products were absolutely necessary to fatten pigs up properly, but it is now being realised that this is a fallacy. In other countries enormous numbers of pigs are raised and fattened largely by grazing them on fodder crops; notably Jerusalem Artichokes, leguminous crops, etc.

The fodder value of Artichokes is very similar to that of Potatoes, but the former have a slightly higher protein and fat content. In feeding Artichokes to pigs it is best to turn the animals into the crops to root out the tubers. Young growing pigs make considerable growth when fed with Artichokes in this manner for a short period, the exercise obtained in harvesting or rooting up the tubers having a beneficial effect. Few foods are more relished by pigs, and they are especially suitable for pregnant sows and also sows reduced in weight and condition after suckling and weaning big litters.

Mr. E. Breakwell, in his book, "The Grasses and Fodder Plants of New South Wales," writes about Jerusalem Artichokes:—

"Good food for pigs; tubers contain large amounts of sugar and gum, and will increase the milk flow. This crop has been grown with great success at Hawkesbury Agricultural College, the tops being used for silage, and the pigs turned in to eat the tubers. There are always sufficient tubers left in the field to produce the following year's crop. Yields of nine tons per acre have been obtained.



A heavy crop of the profitable Gramma Pumpkin.

Cattle Pumpkins

Cattle Pumpkins make an excellent winter feed for milking cows and young calves. Early spring sowing is best as it allows them plenty of time to ripen and they then keep much longer. Store in a dry airy shed leaving the short stalk attached. 1 lb. will sow an acre. We keep the following varieties:—

Mammoth Cattle—Very large, heavy cropper.

Gramma—A long shaped variety, big yielder (see special article below).

Mixed Cattle—Including types of Ironbark and similar varieties, excellent for productiveness and keeping quality.

Gramma Pumpkins as Cow Fodder

That the Gramma Pumpkin is of great value for cow fodder has been amply proved by Mr. E. H. K. Downes, of Camden, who grows three or four acres of this crop every year. It is a heavy yielder in normal seasons, but in very good seasons Mr. Downes estimates that nearly forty tons of Pumpkins have been produced on every acre, and says that no other fodder crop gives him an equal return. The Pumpkins are sliced on a Turnip Slicer and fed to the cows with silage or other material to make a balanced ration. Some 60 tons are now stored away for this purpose.

GROWN FROM YATES' PEDIGREE SEED.

Mr. J. T. W. ———, TENTERFIELD.

"I purchased two bushels of Silvermine Maize seed from you, which I planted for last year's crop, and am pleased to say it turned out an excellent sample. An expert from the Department of Agriculture heard I had this variety, and he came and inspected it in the field and purchased a quantity for the Department, and I have had orders from half a dozen places in N.S.W. and Queensland."

ARTHUR YATES AND CO., LTD.,



Types of the strong, healthy Artichoke Tubers which we can supply during the months of June, July and August.

A FEW NOTES ON PASTURE IMPROVEMENT

THE work of pasture improvement is uppermost in the minds of many pastoralists and most dairy farmers at the present time, as landowners are anxious to increase the carrying capacity of their holdings and the production per capita of their stock.

The natural pastures of Australia are the basis of national income for they support practically the whole of the sheep and cattle of the country. Therefore, the study of Grasses and of the principles underlying their successful production is worthy of the greatest attention.

Australia's native Grasses are justly famous for their grazing and their drought-resistant qualities. They are noted for producing the finest and best wool in the world and for withstanding great extremes of heat and drought. No other plants have proved equal to our own for the drier parts, and the success of our pastoral industries depends on them. In the moister coastal regions, however, introduced grasses and fodder plants thrive exceptionally well and should be used to the best possible advantage where soil and climatic conditions are favourable.

Until recently little accurate information had been recorded as to the behavior of the numerous grasses and forage plants under varying N.S.W. conditions. Now, however, as is apparent from the following notes, a large fund of authentic data has been compiled. The credit for this advance is due to the Department of Agriculture (and in particular to the Agrostologist's Section); to the pastoralists and farmers who have undertaken experimental work on their holdings and to the leading seed merchants, whose enterprise has made available high-grade stocks of so many valuable grasses and fodder plants not hitherto grown in Australia.

The following notes are, in the main, extracts from articles by Mr. J. N. Whittet, H.D.A., Agrostologist of the Department of Agriculture, to whom due acknowledgment is made. The matter is divided under three headings: (1) Improved Pastures for Sheep; (2) Better Pastures for Dairying Districts; (3) Pasture Specifications.

1. Improved Pastures for Sheep

After several years of experiment and observation, definite recommendations can now be made regarding the best varieties of grasses and clovers to plant, and the most satisfactory fertilisers and the quantities of same to apply as top-dressings.

The sowing of pastures has proceeded hand in hand with top-dressing, and the value of lucerne has been demonstrated, not only in districts of heavy rainfall, but as a grazing proposition in average wheat districts.

In periods of drought, when the natural pastures have been practically useless, large areas of lucerne on typical wheat land have carried up to two sheep per acre.

In parts of the Tablelands and the Central Western and South-western Slopes, where the country is too rough for lucerne, Subterranean clover has given good results. Maximum results can only be secured from this clover by top-dressing it with superphosphate.

Fat Sheep and Fat Lambs.—In Australia the improvement of pastures will assuredly play a big part, not only in increasing the number of lambs raised, but also in producing better quality sheep. The fact that wool has been decreasing in price of recent years is turning the attention of pastoralists located in the more favoured districts of the State to fat-lamb production. Landholders on the Central and Southern Tablelands, Central-western and South-western Slopes, and Eastern Riverina can improve their country by the use of introduced grasses and clovers, by top-dressing with superphosphate, and by establishing large areas of grazing lucerne. Fat-lamb raisers with large holdings can adopt similar methods. The mixed farmer has the necessary plant available, and consequently is in an excellent position to grow large areas of fodder crops, such as oats, rape, etc., for grazing purposes, and also to plant lucerne.

If ewes are in good condition and on good pastures at lambing time, the lambs are strong and do not suffer any check in growth. Good succulent feed

will ensure a bigger percentage of lambs than is the case where pasturage is dry and scanty.

In marketing fat sheep of any kind, especially lambs for the export trade, it is essential that the



PHALARIS BULBOSA—Photo of a trial undertaken by the late Mr. Arthur Yates at his experimental farm over 20 years ago. He was quick to see the value of this new introduction and in Yates' 1910 Farm Seed Catalogue said "After exhaustive trials we report that it promises to be one of the very best grasses we have tested for many years. Unfortunately it is a shy seeder and supplies will probably always be expensive."

This report has been amply confirmed by successful results throughout the Tableland Country and even on part of the Slopes; in fact a paddock sown down about the time of the above experiment has always been recognised as one of the best in the district.

SUPPLIERS OF RE-MACHINED AND TESTED FARM SEEDS

PASTURE IMPROVEMENT—(continued)



Wimmera Rye Grass—a proved pasture grass.

flesh be free of grass seeds. In spear grass country, if good, clean pastures are available, such as those obtained in Riverina and parts of the Western Slopes by the use of Wimmera Rye, Lucerne, Subterranean clover, etc., fat stock can be marketed free of this deleterious "seedy" material.

Better Pastures Produce Better Products.—The most critical period in a sheep's life is during the first twelve months of its existence, for it is then that the animal largely builds up its framework on which is dependent its wool and mutton producing powers. A strong, virile constitution, together with good pastures, enables the animal to withstand disease and produce a good class of wool free from "break" and other detrimental features. Improved pastures, therefore, are valuable in that they provide more and better class wool and meat, and lessen the danger of disease occurring.

Nourishing the Pastures.—By nourishing the pastures through the application of fertilisers, not only is the quantity of feed increased, but a considerable gain in the nutritive value of the plants, takes place. The universal use of superphosphate as a top-dressing for pastures is mainly due to the following facts:—

1. It stimulates the growth of leguminous plants, such as clovers; which are particularly relished by stock on account of their palatability and high feeding value.
2. It encourages the growth of most of our palatable introduced grasses, and also many of our rapid-growing, nutritious native species.
3. It is an economical fertiliser to use, and the residual effect is apparent for more than one season.

Top-dressed pastures remain greener, and consequently are more palatable to stock than unmanured areas, and by not drying out readily the danger from bush fires is lessened.

Broadcasting Seed Amongst Native Grasses.—In many districts considerable improvement is being effected by simply broadcasting seed of grasses and clovers amongst the native grasses.

Where top-dressing machines are used, the opportunity should be taken to distribute grass and clover seed by mixing it with the fertiliser. As most of the top-dressing work is carried out in the autumn, this time synchronises with the correct period to sow winter grasses and clovers.

Converting Old Cultivation Paddocks into Improved Pasture.—The use to which old wheat cultivation paddocks can be put is being demonstrated very effectively in many parts of the State by progressive farmers and graziers.

One grazier at Yerong Creek, near Henty, has been planting Wimmera Rye and Lucerne for some years past, until now he has 300 acres of Wimmera Rye, 200 acres of a mixture of Wimmera Rye and Lucerne, and a sprinkling of Wimmera Rye over 500 acres.

The practice adopted is to sow the Wimmera Rye grass and Lucerne with the last crop of wheat to be grown; the land is then turned over to grazing for five or six years. The mixture generally used is 2 lb. Wimmera Rye and 2 lb. of Lucerne. In this district it is estimated that this class of pasture will carry two sheep per acre, whereas the carrying capacity of unimproved pasture is one sheep per acre.

The country is sweetened up by cultivation, and the better class grasses, such as Wallaby or White top, reappear in the pasture.

The policy of planting Wimmera Rye and Lucerne is more effective than allowing the old cultivation



These three-and-a-half months old Corriedale lambs are as big as their mothers and are fattening on Phalaris bulbosa.

ARTHUR YATES AND CO., LTD.,

PASTURE IMPROVEMENT—(continued)

simply to revert to barley grass, herbage, and weeds. Such growth does not provide the quantity or quality of feed obtained from sowing a few pounds of seeds of the plants, which will supply good grazing practically all the year round.

Ploughing up Poor Pasture and Planting Seed Effects Improvements.—In many instances where originally the pasture was of very poor quality, and growing inferior herbage plants, very considerable improvement has been effected by turning it over with ploughs or disc cultivators, and sowing a mixture of grasses and clovers.

This work has been adopted with advantage on many areas of ploughable Spear grass country on the Slopes and Riverina, the country having been converted into valuable grazing paddocks, free of "seedy" grasses, through cultivation and planting of grasses and lucerne on the deeper classes of soil, and Wimmera rye grass and Subterranean clover on the shallower types of land.

2. Better Pastures for Dairying Districts

In most of our dairying districts the need is apparent for a change of food from the ubiquitous paspalum, which has taken possession of the best of the country in our coastal areas.

While providing good food during the warmer months of the year, it suffers considerably from frosts and droughts, and at such periods is of little value for producing and maintaining a good flow of milk.

Fortunately we have in White clover a very nutritious legume, and one of the very few useful plants which will thrive in association with a rampant grower such as paspalum. The clover does not last right through the year, however, and it is necessary to incorporate other plants, and especially legumes, in the pastures, and so endeavour to provide a change of feed for the animals during the four seasons of the year.

Good Pastures Reduce Disease Liability.—If stock have access to succulent pastures they are less liable to become affected with such troubles as rickets, bone-chewing, etc., which are generally associated with poor pasturage. Much poor land will produce infinitely better feed, if it can be broken up and sown with suitable grasses and clovers. On some of the country implements cannot be worked, but winter-growing plants such as Wimmera Rye, Italian Rye, Perennial Rye, Cocksfoot, Sheep's Burnet, and Subterranean clover can be scattered in suitable places on these areas.

Top-dressing Winter Grasses and Clovers.—Most of our winter grasses, and especially the clovers, respond to fertiliser, and applications of 1 cwt. to 1½ cwt. of superphosphate per acre should be made during the autumn months. Subterranean clover, however, should be top-dressed later in the year—in June or July. It has been demonstrated for many years past, that by top-dressing pastures the growth of the better class grasses is encouraged, and the development and seed production of clovers are increased. Clovers are the most economical forms in which to supply protein to animals, and it is expedient that young growing stock, animals producing and rearing young, and cows in milk, receive large quantities of this valuable nitrogenous material, which is so essential to their well-being.

Stock grazing on pastures remove from the soil an amount of fertility that corresponds to the quantity of meat or milk produced from the pasturage consumed. To counteract this loss the fertility of the soil must be reimbursed, chiefly through the application of fertilisers.

Winter Grasses and Clovers versus Paspalum.—The price of butter is generally high when the milk flow is decreasing, and this usually occurs during winter months. In districts where frosts are experienced paspalum pastures are then producing little or no

Lucerne.—The areas being sown on average wheat country that is reasonably deep and has produced fair crops of wheat are increasing every year, and within the next ten years we should find many thousands of acres of lucerne planted for grazing purposes in the drier parts of the State. In good seasons large quantities of lucerne hay could be harvested from the better areas in this type of country, and what better standby could one have for drought periods than this product? It stacks and keeps well, and there is no grain present to attract rats and mice, as is the case with most other types of hay.

A considerable increase in the acreage under lucerne for grazing purposes has been recorded in the colder parts of the State, such as the Northern, Central, and Southern Tableland districts. Some years ago the general idea existed that lucerne would only grow satisfactorily on deep, rich, alluvial flats, but to-day we consider it to be one of our best and hardiest pasture plants for cold, as well as dry, localities.

nourishing material, and unless succulent winter feed is available the milk flow further diminishes as the winter advances. Where succulent winter-grasses and clovers are available, a good flow of milk is assured, not only during the colder months, but during the greater part of the year, on account of the fact that the majority of the plants recommended for coastal districts are perennials.

The grasses used in some interesting trials recently carried out were Cocksfoot, Perennial Rye, Tall Fescue, and Prairie; and the clovers were Perennial Red, Cow Grass, and White. When inspecting this area in August, 1924, although the cows had been grazing on the pastures for some time, it was estimated that there was five times as much feed on the winter grasses as on an equivalent area of paspalum. Again, in May, 1925, an inspection showed that the winter grasses and clovers were green and succulent, and the paspalum dry and harsh. This condition of affairs would exist from May to September. The case proves conclusively that during the cooler months of the year winter grasses and clovers will carry milking cows more effectually than paspalum.



TALL FESCUE—Photograph taken over 20 years ago at Yates' Trial Grounds. In our 1910 Farm Seed Catalogue we said of this grass: "It has lately proved to be a really good grass for New South Wales and has thriven in the more or less exhausted lands of our old settled dairying districts." Its extended use for present day pasture mixtures shows how well this grass has justified our early opinion.

SUPPLIERS OF RE-MACHINED AND TESTED FARM SEEDS

PASTURE IMPROVEMENT—(continued)

Clovers.—The most outstanding plant for sowing in coastal districts, and especially amongst paspalum, is White clover (*Trifolium repens*). In many localities White clover is so plentiful that in a good season dairy stock have to be judiciously grazed on it, otherwise losses may occur through hoven or bloat. There are centres, however, where this species of clover is becoming thinned out of pastures through overstocking, and re-seeding of the area is necessary.

Until recently, the idea that the various perennial forms of Red Clover (*Trifolium pratense* var. *perenne*) formed little or no seed was generally accepted, but their spread into areas which have not been planted with seed has proved that a fairly liberal amount of seed is formed, especially when the crops are grown under cultivation. During the past few years, the growing of Perennial Red clover on cultivation land and grazing stock on it, has been fairly extensively practised in Central Coast districts and in dairying centres on the Southern Tableland, and it is now quite a common sight to see patches of this clover springing up in paspalum and native grass paddocks. This result is obtained through the cows grazing on clover areas which are in seed. The seed is evidently not affected by the animals' digestive processes, as it germinates freely in the droppings, which form an excellent medium for rapid growth. This is also a most satisfactory method of spreading Subterranean clover in pastures. By returning the stock into a profuse growth of Subterranean clover that is carrying large quantities of seed, this valuable legume soon establishes itself among the other pasturage.

Paspalum and its Renovation.—Ploughing the paspalum in March or April every fourth or fifth year with a mouldboard plough, turning furrows about 6 inches wide, and working the furrows down with disc-harrows, disc-cultivators, or tine harrows, and broadcasting the following mixture of seed gives very beneficial results:—Wimmera Rye 2 lb., Italian Rye 2 lb., Perennial Rye, 2 lb., *Phalaris bulbosa* 1 lb., Cocksfoot 2 lb., Tall Fescue 2 lb., Subterranean clover 1 lb., Perennial Red Clover 1 lb., White clover 1 lb., and Sheep's Burnet 1 lb. per acre. If the soil is friable and deep, include 1 lb. of lucerne in the mixture. Ploughing induces a new root system to develop, and the plant is then better able to assimilate any fertiliser applied and to make full use of the rainfall.

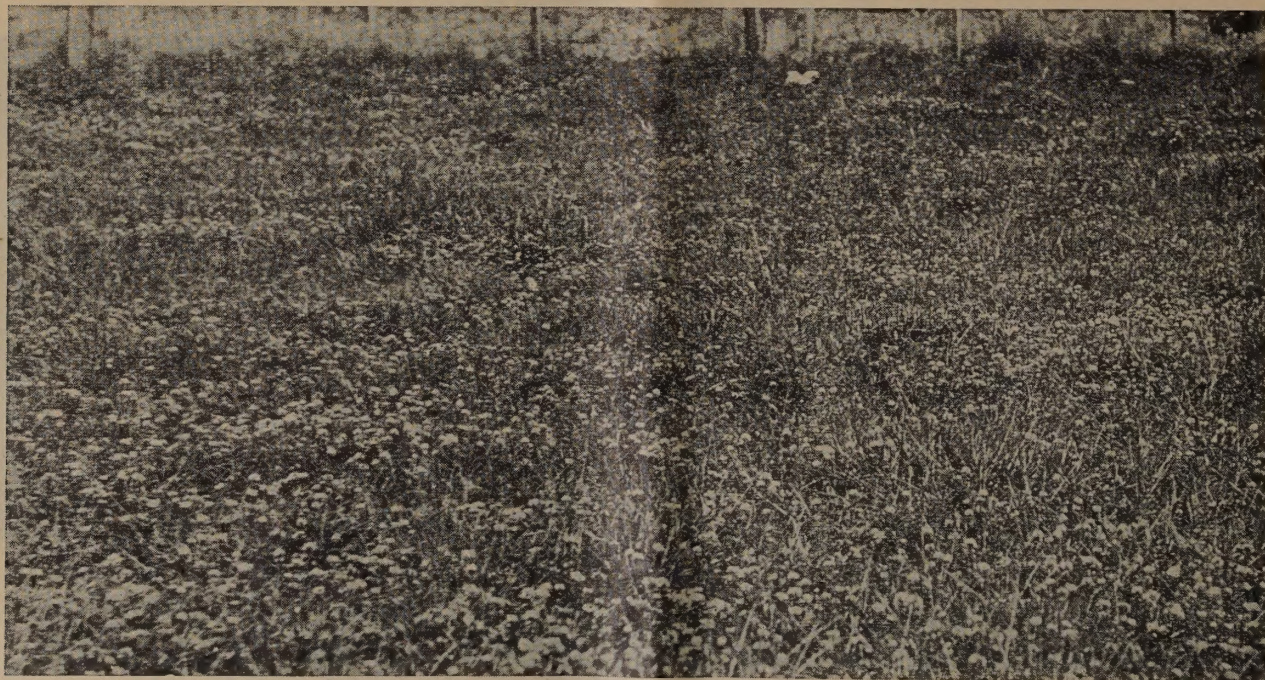
Where it is impossible to plough, broadcast the following mixture amongst the paspalum during the late autumn:—Wimmera Rye 3 lb., Italian Rye 2 lb., Perennial Rye 2 lb., Subterranean clover 2 lb., White clover 1 lb., and Sheep's Burnet 2 lb. per acre. Use the disc harrow or chain harrow where possible to work the seed in and round the crowns of the paspalum plants.



A portion of a series of Clover tests undertaken at our Trial Grounds.

If it is not desired to sow grasses on ploughed land, by broadcasting $1\frac{1}{2}$ to 2 bushels of oats per acre on the area, little or no loss of feed is sustained through the paddock being ploughed.

If it is desired to renovate paspalum in localities such as the Dorrig, where long, cold winter periods are experienced, the grass should be ploughed during spring months; heavy frosts will kill out a big percentage of the grass if it is ploughed during the



Close-up view of improved pasture—note the abundance of Clovers.

ARTHUR YATES AND CO., LTD.,

PASTURE IMPROVEMENT—(continued)

autumn. As useful grasses such as Cocksfoot, Wimmera, Italian and Perennial Rye grasses, Fescues, *Phalaris bulbosa*, and various species of clovers, provide good feed all the year round, and particularly during the winter months, larger areas should be sown than is the practice at the present time. It is readily admitted by farmers on the Dorrigo plateau, that originally their pastures of Cocksfoot, Rye grass and clover carried more stock than is the case today, when *paspalum* predominates. Wherever it is possible to do so, it is sound practice to plough up *paspalum* areas in the autumn, and sow the mixture of grasses and clovers already given for ploughed *paspalum* areas. This will result in an increased carrying capacity on land which, under *paspalum*, can only be looked upon as summer pasture.

By ploughing in the autumn a considerable quantity of the *paspalum* will be killed off, and if a mixture of winter grasses and clovers is sown, a good mixed pasture, with a sprinkling of *paspalum*, will result.

Ploughing Improves the Palatability of *Paspalum*.

—The superiority of ploughed *paspalum* pastures over unploughed areas has shown up to a marked degree during the past season. At a property at Murwillumbah the feed on areas ploughed eighteen months ago has been cropped close to the ground, whereas the grass on unploughed portions, located in the same paddock, has been neglected by stock, the feed standing 2 feet to 3 feet high in places.

Lucerne.—Although lucerne is fairly extensively grown in coastal districts, dairy farmers should endeavour to grow larger areas, as this crop is undoubtedly the most satisfactory hay, green fodder, and grazing proposition available. Once established it lasts for a number of years; although the initial expenditure for seed and preparation of the land is somewhat high, the value of the feed produced during the first two years of the crop's growth more than covers these costs. Lucerne as green feed or hay is excellent fodder for dairy stock. Being a legume, it is rich in protein, an ingredient that is required in large quantities by milking cows in high production. On most dairy farms there is often a shortage of succulent green feed during winter months, and cows respond well if judiciously grazed for a brief period each day on the winter growth of lucerne. At the end of the winter, the fields should be worked with a spring tooth cultivator fitted with special lucerne points, to break up any crust formed on the surface soil; a top-dressing 2 cwt. of superphosphate per acre should also be applied at this period.

Harrowing the Pastures.—Implements of the chain harrow or similar type, that will give the ground a good scarification and break down and distribute animal droppings, are recommended for use on pas-

ture land. By disturbing the surface of the pasture a seed-bed is formed in which grass and clover seed will readily germinate. A mulch is also produced around the established plants, and rain and soil moisture is better conserved and fertiliser retained than would be the case if the surface soil was in an extremely consolidated condition.

Small Paddocks and Change of Feed Essential.—

In order to obtain the maximum returns from the pastures numerous small paddocks are essential; these will enable the farmer to adopt a system of rotational grazing, thus providing the animals with frequent changes of succulent and nutritious pasturage.

Operations in the Tumut District.—Considerable activity has been shown by landholders in this district in the matter of pasture improvement, the grasses that give the best results on the heavy soils on the flats (which are generally very wet in the winter) being Perennial rye, Wimmera rye, and *Phalaris bulbosa*. White, Perennial Red, and Subterranean are the best clovers. On the lighter types of alluvial flats, which are well drained, lucerne gives excellent returns, and larger areas should be planted with this crop on this class of soil.

Old cultivation land on the undulating country can with advantage be planted with a suitable mixture of grasses and clovers, rather than be allowed to go back to native grasses and herbage. The most satisfactory mixture for this class of country is Wimmera rye 3 lb., *Phalaris bulbosa* 2 lb., Tall Fescue 2 lb., Subterranean clover 2 lb., lucerne 1 lb. per acre.

On the rougher types of hill country in this district, considerable areas are being sown with Perennial rye, Wimmera rye, Cocksfoot, Subterranean clover, and Sheep's Burnet. The seed is scattered on broken land where there is sufficient soil to hold and germinate it; plantings are also made on dug-out rabbit burrows, in and around stump-holes, and any other suitable position where the plants can obtain a good foothold. When those plants are in seed, stock grazing over them distribute the material into other pasture paddocks. This is particularly the case in this district with large stock grazing on Subterranean clover, as their droppings provide an excellent medium in which the seed germinates; in addition, the plants make rapid growth, and form a plentiful supply of seed.

The value of improved pastures to the dairy farmers of this district is exemplified in the work carried out on a large holding at Tumut. Not only are more cows carried than was the case in 1915, but the average return per cow has increased considerably. It is considered that these increases are mainly due to improved pastures, as the area now under cultivation is practically the same as in 1915.



Lucerne is the King of Fodder Crops for the dairy farm.

SUPPLIERS OF RE-MACHINED AND TESTED FARM SEEDS

PASTURE SPECIFICATIONS

Recommendations for Typical Districts and for Various Soil and Climatic Conditions

THE following table of Grass Seed Specifications has been drawn up by the Agrostologist of the Agricultural Department of New South Wales as recommendations for the different parts of the State. In this work of distributing information and suggestions as to Pasture Improvement, we are glad to co-operate; and with the knowledge we have gained from a long connection with the grass seed business of Australia and New Zealand and the experiences of customers throughout the country, we are always pleased to offer such further advice and assistance as may be required by those who cannot suit any of the following to their particular conditions. These tables are published as a guide to help those interested to work out a pasture mixture for their particular requirements and should prove valuable not only to landholders of New South Wales, but to the whole Commonwealth, as these Grass Seed Specifications should do well in other parts with similar climates.

For general information concerning the varieties mentioned in the following lists, see pages 26-29; those who wish to study the different forage plants in still greater detail are recommended to write for the book "Grasses and Fodder Plants of New South Wales," by E. Breakwell, obtainable from Arthur Yates & Co. Ltd. Price 6/-; postage 4d. extra.

N.B.—When several specifications are suggested for a particular district (other than those for special conditions) they are largely complementary one to another, and therefore it is advisable to sow different paddocks with the different mixtures, thus providing for continuance of feed and variation of diet. The different grasses and clovers vary as to their productiveness at the different seasons of the year. In soils of fair quality or where preparation of the land for sowing has been good, heavier sowings may sometimes be made with advantage.

PREPARATION AND SOWING

The best preparation possible should be given as with other crops; but in the many cases where thorough ploughing, etc., is impossible, advantage should be taken of any means or circumstances which will provide suitable conditions. The following suggestions will assist customers to adopt or devise methods to suit requirements.

* Grass and Clover Seeds require only a very light covering of soil and brush or chain harrows are most suitable for covering seeds on loose soil. Where implements cannot be worked and if the soil is friable, seed can be effectively covered by driving a mob of sheep over the area.

When sowing mixtures of light and heavy seed, only small lots should be mixed at one time, and the seed should be kept well stirred while distributing.

Where very small quantities per acre are being sown, it will be found easier to do so by sowing half the seed first at half the rate per acre, thus going over the land twice. By this means any unevenness in the first sowing will probably be corrected the second time over.

Wheat Drill—

- (a) The seed can be mixed with Superphosphate ($\frac{1}{4}$ to 1 cwt. per acre) just before sowing and sown through the fertiliser box;
- (b) Special attachments for sowing grass and clover seeds can be obtained for some makes of drills.

In either case the hoes or discs should be set to run on the surface of the ground, as the seed only requires to be lightly covered. If, afterwards, much of the seed remains uncovered run a harrow at right angles to the drill.

Top-Dressing Machine—The seed is mixed with the fertiliser as above.

Broadcasting by Hand—It is difficult to do this accurately, but it is quite successful on small areas and where only one or two varieties are being sown.

Broadcasting Machine (hand-driven)—These are very handy and inexpensive machines, and although several types are available we strongly recommend the "Cahoon," which we offer at 28/- (postage extra), (see description on page 32). We ourselves have sown many acres with this machine, and we have found that with a little practice quite small quantities per acre can be sown accurately. When sowing very small quantities per acre the seed should be mixed with fertiliser or fine dry soil or sand.

Casual Distribution—

- (a) One customer reports a very successful seeding of Rhodes Grass by carrying a sack of seed on horseback and allowing it to trickle out through a slit in the bottom;
- (b) Opportunity should be taken to distribute the seed any time when the surface of the soil is disturbed—for instance, digging out rabbit burrows, storm washes, when cutting areas of noxious weeds, such as burrs, etc.;
- (c) Fallen timber, stumps, etc., provide effective covering and are specially useful in preventing naturally dropped seed from being blown away on flat country subject to strong winds. It is a mistake to remove this cover by burning or other means;
- (d) A favourite method in Coastal areas is to sow seed immediately after burning off the heavy undergrowth. The ash forms an effective seed bed and the grasses and clovers become established before the natural growth recovers.

Time of Sowing—The approximate periods during which mixtures may be sown are indicated at foot of each, but of course, customers must be guided by local and seasonal conditions and should realise that the limits given are necessarily wide. For instance, if "Plant March-August" is given, the intention is that sowings should be made in Autumn and early Winter, but may, if necessary, be made as late as August if the season be then favourable.

Supplies and Costs—As with all seeds, supplies are each year governed by weather conditions, favourable or otherwise, during the growing and harvesting period. For this reason, and also to ascertain the approximate cost per acre, those who contemplate pasture improvement work are advised to refer to Yates' Current Price List (published every three or four weeks). Then, if any variety be out of stock the quantities of the others may be varied or an alternative chosen.

ARTHUR YATES AND CO., LTD.,

IMPORTANT NOTICES

TIMES OF SOWING.—See paragraph at foot of preceding page.

HOW TO ORDER.—Please refer to the specifications by number (viz., "N.C. 3" or "S.C. 2"). When a specification is ordered we do not mix the varieties before despatching. Their weight and physical qualities vary so greatly that during transportation they will not remain evenly mixed.

SPECIFICATIONS MAY BE VARIED—

- (1) The specifications in these pages are recommendations for average conditions, but may be varied as to varieties, proportions, and total quantities according to nature of preparation of soil, class of country, stock carried and varieties available.
- (2) When a complete specification is ordered by number we will vary the varieties and quantities stated if one or more kinds are out of stock; or if, from the particulars given with orders, we think it is in the customer's interest to do so. If this is not desired, please mark order "DO NOT SUBSTITUTE," in which case the customer will be advised and asked for further instructions.

COSTS.—See paragraph "Supplies and Costs" at foot of previous page.

FOR NORTH COAST

(between Tweed and Macleay Rivers) and similar sub-tropical areas throughout Australia with heavy summer rainfall, mild winters, with little or no frost and usually light winter rains.

N.C. 1.

For general summer pasture.
12 lbs. Paspalum dilatatum.
4 " White Clover.
16 lbs. Per acre

Plant Oct.-March.

N.C. 2.

Specially suited for undulating country with deep soils.
5 lbs. Rhodes Grass.
2 " Lucerne.
7 lbs. Per acre.

Plant Sept.-Oct., or Feb.-March.

N.C. 3.

This mixture is for a fairly rich soil which has been thoroughly prepared, and should give excellent winter and early spring grazing. It is recommended for sowing on worn-out Paspalum pastures, especially where cold winters are experienced, such as on the Dorrigo, as it provides a good growth throughout the year. In this case the Paspalum should be ploughed in the autumn, as then a considerable quantity will be killed off by winter frosts. Sowing the mixture of grasses and clovers at this time a good mixed pasture, in which a sprinkling of Paspalum is present, will result.

- 2 lbs. Tall Fescue.
- 2 " Prairie Grass.
- 2 " Italian Rye Grass.
- 2 " Perennial Rye Grass.
- 2 " Wimmera Rye Grass.
- 2 " Cocksfoot.
- 1 " Phalaris Bulbosa.
- 1 " White Clover.
- 1 " Perennial Red Clover.
- 1 " Lucerne.
- 1 " Sheep's Burnet.

17 lbs. Per acre.

Plant March-July.

N.C. 4.

Provides a welcome change of feed from Paspalum and makes growth over a long period. Should not be put into land likely to be required for cultivation, as while it does not spread readily into surrounding land, it is rather difficult to eradicate.

Kikuyu Grass Roots planted 3-4 ft. apart in early spring.
2-3 lbs. per acre White Clover would add to the value of this pasturage.

Plant Aug.-Oct., and early autumn if favourable.

N.C. 5.

For swampy areas where the winters are not very cold, Poa Aquatica (water meadow grass), Poa (Glyceria), Fluitans (manna grass or floating sweet grass).

For saline marshes or swampy lands which are flooded in winter and comparatively dry in summer, Paspalum Distichum (water couch). The above grasses are obtainable in roots only.

Lotus Major and Strawberry Clover are valuable for marshy lands and do well in conjunction with Poa (Glyceria), Fluitans and Paspalum Distichum.

Seed of these is usually available. Plant at any favourable time.

N.C. 6.

For heath country and elevated sandy land near the coast.

5 lbs. Paspalum compressum (Carpet Grass).

This grass does not compare with paspalum or Kikuyu as a pasture grass and is not recommended for situations where these two grasses thrive.

Plant Oct.-March.

N.C. 7.

For renovating Paspalum pasture where it is impossible to plough, broadcast and harrow in the following:—

- 2 lbs. Wimmera Rye Grass.
- 2 " Italian Rye Grass.
- 2 " Perennial Rye Grass.
- 2 " Perennial Red Clover
- 1 " White Clover.
- 2 " Sheep's Burnet.

11 lbs. Per acre.

Plant April-July.

N.C. 8.

For temporary pasture on good alluvial cultivation lands which can subsequently be easily ploughed up and brought back to cultivation.

- 8 lbs. Perennial Rye Grass.
- 2 " Italian Rye Grass.
- 2 " Wimmera Rye Grass.
- 2 " White Clover.

14 lbs. Per acre.

Sow Feb.-July.

N.C. 9.

This additional specification is particularly suited for rich river flats similar to those in the Kempsey district.

- 3 lbs. Phalaris Bulbosa.
- 6 " Perennial Rye Grass.
- 2 " Wimmera Rye Grass.
- 3 " Prairie Grass.
- 2 " Perennial Red Clover.
- 2 " Subterranean Clover.

18 lbs. Per acre.

Plant March-July.

SUPPLIERS OF RE-MACHINED AND TESTED FARM SEEDS

PASTURE SPECIFICATIONS—(continued)

FOR CENTRAL COAST

(between Kempsey and Sydney) and similar districts where the climate is warm in summer, with fair, mid and late summer rains; winters mild and cool with occasional frosts and a fair winter rainfall. The typical fruit of this climate is the Orange.

The Mixtures N.C. 1, N.C. 2, and N.C. 4 are suitable for this country with other paddocks of the following:—

C.C. 1.

- 2 lbs. Phalaris Bulbosa.
- 6 " Perennial Rye Grass.
- 2 " Wimmera Rye Grass.
- 3 " Prairie Grass.
- 2 " Perennial Red Clover.
- 1 " Subterranean Clover.

16 lbs. Per acre.

Plant March-August.

C.C. 2.

- 3 lbs. Cocksfoot.
- 2 " Tall Fescue.
- 2 " Italian Rye Grass.
- 3 " Perennial Rye Grass.
- 2 " Wimmera Rye Grass.
- 2 " White Clover.
- 1 " Subterranean Clover.

15 lbs. Per acre.

Plant March-August.

For renovating Paspalum pastures N.C. 7 is recommended, and on the higher country with colder climates N.C. 3; the mixtures N.C. 5, and N.C. 6, recommended for swampy land and heath country respectively, on the North Coast, are also applicable to this area, also N.C. 8 for temporary pastures on alluvial soils.

FOR THE SOUTH COAST

(between Sydney and Eden) and similar districts with a climate which is temperate and usually free of extremes, and with a good average rainfall well spread and fairly certain.

S.C. 1.

For soil of fairly good quality. This mixture should provide feed all the year round.

- 4 lbs. Cocksfoot.
- 4 " Tall Fescue.
- 4 " Perennial Rye Grass.
- 2 " Perennial Red Clover.
- 1 " Subterranean Clover.
- 1 " White Clover.

20 lbs. Per acre.

Sow Feb.-July.

S.C. 2.

For good quality soils. This should supply an excellent growth of feed in the cooler months.

- 3 lbs. Phalaris Bulbosa.
- 4 " Wimmera Rye Grass.
- 3 " Prairie Grass.
- 4 " Tall Oat Grass.
- 2 " Perennial Red Clover.
- 1 " Subterranean Clover.
- 1 " White Clover.

18 lbs. Per acre.

Sow Feb.-July.

S.C. 3.

Specially designed for poor quality hill country.

- 3 lbs. Cocksfoot.
- 2 " Wimmera Rye Grass.
- 2 " Sheep's Burnet.
- 2 " White Clover.
- 1 " Subterranean Clover.

10 lbs. Per acre.

Sow Feb. June.

S.C. 4—An alternative mixture for hill country with rather poor soils.

- 2 lbs. Rhodes Grass.
- 3 " Wimmera Rye Grass.
- 2 " Tall Oat Grass.
- 1 " Subterranean Clover.

8 lbs. Per acre.

Sow Feb.-June.

N.C. 1, 3, 4, 5, 6, 7, 8

(To be used in conjunction with above.)

N.C. 1 and N.C. 4 should be used as alternatives in these districts, especially for summer use, when the pastures S.C. 1 and S.C. 2 can be spelled. For renovating Paspalum pastures N.C. 7 is recommended,

and on the higher country with colder winters N.C. 3. The mixtures N.C. 5 and N.C. 6, suggested for swampy land and heath country, respectively, on the North Coast, are also applicable to this area, also N.C. 8 for temporary pastures on alluvial soils.



Improved pasture area on a well-known horse stud in N.S.W.

ARTHUR YATES AND & CO., LTD.,

PASTURES SPECIFICATIONS—(continued)

FOR NEW ENGLAND AND NORTHERN TABLELANDS

(of which Walcha, Armidale, Glen Innes and Tenterfield are representative). Climatic conditions comprise mild and cool summers, severe winters with heavy frost and occasional snow, rainfall good, falling mostly in late spring and early summer, winters dry.

In addition to the sowing of introduced grasses as mentioned below, the *Danthonia* (Wallaby or White Top) and *Chloris* (Windmill) type of native grasses should be encouraged, as they provide winter feed and are very palatable.

N.T. 1.

For black soil country which has been well prepared.

- 4 lbs. *Phalaris Bulbosa*.
- 1 " *English Trefoil*.
- 1 " *White Clover*.
- 1 " *Perennial Red Clover*.

7 lbs. Per acre.

Sow March-August.

N.T. 2.

An alternative to N.T. 1 if *Phalaris* is scarce or hard to obtain; suited for black soil country which has been properly prepared.

- 2 lbs. *Phalaris Bulbosa*.
- 10 " *Perennial Rye Grass*.
- 2 " *English Trefoil*.
- 2 " *White Clover*.
- 2 " *Perennial Red Clover*.

18 lbs. Per acre.

Sow March-August.

N.T. 7.

For soils not suitable for *Lucerne*, *Bokhara Clover* is proving of value. It does well in the Tenterfield district for example, and makes good temporary pasture if sown in autumn on well prepared land; it is advisable to keep this clover away from wheat lands.

- 12-15 lbs. *Bokhara Clover*.

Sow Feb.-June.

N.T. 3.

For red soil country which is usually lighter and more friable, the following is suggested:—

- 4 lbs. *Tall Fescue*.
- 6 " *Cocksfoot*.
- 2 " *Tall Oat Grass*.
- 1 " *English Trefoil*.
- 1 " *Perennial Red Clover*.

14 lbs. Per acre.

Sow March-August.

N.T. 5.

Potato land and other rich cultivation land which is desired to be put into pasture for three to four years can be planted with the following:

- 10 lbs. *Perennial Rye Grass*.
- 2 " *Perennial Red Clover*.

12 lbs. Per acre.

Sow March-August.

N.T. 4.

Specially made up for poor quality land on ridges.

- 2 lbs. *Tall Fescue*.
- 1 " *Meadow Fescue*.
- 1 " *Kentucky Blue Grass*.
- 3 " *Wimmera Rye Grass*.
- 3 " *Cocksfoot*.
- 2 " *Sheep's Burnet*.
- 1 " *English Trefoil*.
- 1 " *Subterranean Clover*.

14 lbs. Per acre.

Sow March-August.

N.T. 6.

For soils of sufficient depth for *Lucerne* which do not become wet and very cold during the winter.

- 3 lbs. *Phalaris Bulbosa*.
- 2 " *Lucerne*.

5 lbs. Per acre.

Sow March-August.

N.B.—When several specifications are suggested for a particular district (other than those for special conditions) they are largely complementary one to another, and therefore it is advisable to sow different paddocks with the different mixtures, thus providing for continuance of feed and variation of diet. The different grasses and clovers vary as to their productiveness at the different seasons of the year. In soils of fair quality or where preparation of the land for sowing has been good, heavier sowings may sometimes be made with advantage.

FOR UPPER HUNTER RIVER

and similar districts, of which Scone, Muswellbrook, Quirindi, Denman and Merriwa are representative. Climatic conditions comprise warm summers, winters cool with frosts; good average rainfall well spread, but occasional hot dry spells.

H.R. 1.

For the lighter types of soils of good depth.

- 2 lbs. *Lucerne*.
- 2 " *Rhodes Grass*.
- 3 " *Wimmera Rye Grass*.

7 lbs. Per acre.

Sow March-June.

H.R. 2.

For light soils not deep enough for *Lucerne*.

- 2 lbs. *Wimmera Rye Grass*.
- 1 " *Subterranean Clover*.
- 2 " *Sheep's Burnet*.
- 2 " *Rhodes Grass*.

7 lbs. Per acre.

Sow March-June.

H.R. 3.

Lucerne, particularly on the heavier black soils, gives in conjunction with the natural grasses excellent results. On the heavier soils 4 lbs., and lighter soils 2 lbs. per acre, has been found sufficient.

Sow in autumn or early spring.

SUPPLIERS OF RE-MACHINED AND TESTED FARM SEEDS

PASTURES SPECIFICATIONS—(continued)

FOR CENTRAL TABLELANDS

(Bathurst, Orange, Mudgee, Carcoar and Manildra Districts.) Typical climatic conditions are warm to hot summer days, but usually cool nights. Winters cold with very heavy frosts and occasional snow. Rainfall fair to good and usually well spread throughout the year.

C.T. 1.

For rich soils of fair depth. Should provide good all-year-round grazing.

- 4 lbs. Phalaris Bulbosa.
- 2 „ Lucerne.

6 lbs. Per acre.

Sow March-June.

C.T. 2.

An alternative to C.T. 1 and has the same characteristics.

- 6 lbs. Tall Fescue.
- 6 „ Cocksfoot.
- 2 „ Lucerne.

14 lbs. Per acre.

Sow March-June.

C.T. 3.

May be used for rather lighter land, makes most growth in the cooler months.

- 2 lbs. Tall Oat Grass.
- 4 „ Wimmera Rye Grass.
- 1 „ Lucerne.
- 1 „ Subterranean Clover.

8 lbs. Per acre.

Sow March-June.

C.T. 4.

The native grasses included in this mixture are very valuable for summer feed and are very drought-resistant. Those interested may be able to make their own arrangements to have seed saved from suitable country as they are rarely obtainable commercially.

- 2 lbs. Coolah Grass (Panicum prolutum).
- 2 „ Warrego Summer Grass (Panicum flavidum).
- 1 „ Giant Panic (Panicum antidotale).
- 2 „ Lucerne.

7 lbs. Per acre.

Sow at any favourable time, usually late summer and early autumn.

C.T. 5.

Recommended for the colder portions of this class of country with a better rainfall—the Orange district for instance.

- 6 lbs. Perennial Rye Grass.
- 4 „ Cocksfoot.
- 1 „ Phalaris Bulbosa.
- 2 „ Perennial Red Clover.
- 1 „ White Clover.

14 lbs. Per acre.

Sow March-August.

C.T. 6.

This is specially made up for potato land and rich cultivation land which is being worked in rotation and makes a good temporary pasture.

- 6 lbs. Perennial Rye Grass.
- 2 „ Perennial Red Clover.

8 lbs. Per acre.

Sow March-July.

C.T. 7.

For low-lying areas where a supply of moisture is always present but which must be well drained, the following is suggested.

- 10 lbs. Perennial Rye Grass.
- 2 „ White Clover.

12 lbs. Per acre.

Sow Feb.-August.

C.T. 8.

Suitable for the warmer and more sheltered portions of this and similar districts not subject to heavy frosts. For sowing on average wheat country of fair depth.

- 4 lbs. Rhodes Grass.
- 2 „ Lucerne.

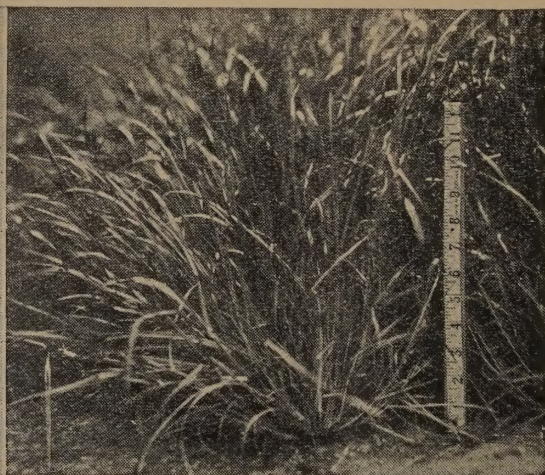
6 lbs. Per acre.

Note.—Rhodes Grass may be omitted if desired.

Sow February-May.

C.T. 9.

A paddock of Sudan Grass is very useful and we suggest about 8 lbs. per acre, sown in October-December, as a valuable paddock for pasture, hay or silage. It must be understood that Sudan is an annual plant and must be sown each year. For summer feed in these districts this is about the only recommendation that can be made, other than the establishing of a Lucerne plot.



Wimmera Rye Grass—left, portion of a paddock on a large

Victorian sheep station; right, under test in our Trial Grounds

ARTHUR YATES AND CO., LTD.,

PASTURE SPECIFICATIONS—(continued)

FOR SOUTHERN TABLELANDS

(as represented by Moss Vale, Crookwell, Bombala and Braidwood Districts, also for Tumut, Batlow and Tumbarumba Districts), of which the following climatic conditions are typical. Summers mild and temperate; winters severe, with heavy frosts and sometimes snow; rainfall very good, particularly in the winter months.

The most important and native grasses for these Districts are Wallaby or White Top (*Danthonia*) and Wheat Grasses (*Agropyrum* Species); the former only is obtainable commercially.

The mixtures C.T. 1, C.T. 2 and C.T. 3, as mentioned for Central

Tablelands, are suitable for these districts in addition to the following, and the better rainfall and cooler conditions permit sowings to be made into the early spring.

S.T. 1.

For good average soils.
6 lbs. Perennial Rye Grass.

S.T. 1—(cont.)

4 " Cocksfoot.
3 " Perennial Red Clover.
2 " Sheep's Burnet.

15 lbs. Per acre.

Sow Feb.-Aug.

For Bombala, Adaminaby and similar very cold localities the following are recommended in addition to the above:

S.T. 4.

4 lbs. Cocksfoot.
2 " Wimmera Rye Grass.
2 " Subterranean Clover.
2 " Sheep's Burnet.

10 lbs. Per acre.

Sow Feb.-June.

S.T. 2.

Suitable for flats.
6 lbs. Perennial Rye Grass.

S.T. 2—(cont.)

1 lb. Phalaris Bulbosa.
3 " Cocksfoot.
1 " White Clover.
1 " Subterranean Clover.

12 lbs. Per acre.

Sow Feb.-May, and if weather favourable, Sept.-Oct.

S.T. 3.

Suitable for the hills.

3 lbs. Perennial Rye Grass.
2 " Wimmera Rye Grass.
2 " Subterranean Clover.
3 " Sheep's Burnet.

10 lbs. Per acre.

Sow Feb.-June.

For some parts of the Cooma district the following additional mixtures are even more suitable than those previously mentioned for southern tablelands, as the summers are cool, winters long and severe, often with heavy snow, and the rainfall rather light.

S.T. 6.

For summer grazing.
4 lbs. Lucerne.
Sow Feb.-May or Aug.-Oct. if conditions are suitable.

S.T. 5.

For low-lying areas where moist conditions prevail.

S.T. 5—(cont.)

6 lbs. Perennial Rye Grass.
4 " Cocksfoot.
2 " White Clover.

12 lbs. Per acre.

Sow Feb.-May or Sept.-Oct.

For SLOPES and OTHER DISTRICTS WEST of the TABLELANDS

Generally speaking, these areas have a typical inland climate, with a rainfall from 20 ins. to 25 ins. per annum which, in the Riverina, falls mostly in the winter, while further north it is more evenly spread over the year.

For these areas the most important work is the preservation and encouragement of the native pastures and this depends on:—

1. An intelligent conception of good and useless varieties.
2. The subdivision of paddocks and judicious stocking.
3. The prevention of over-stocking particularly after a drought period. Good grasses should be encour-

aged in every way possible such as by allowing them to seed and scattering seed over denuded areas. Seed of these valuable native grasses is rarely obtainable commercially.

In addition to the above, however, the following introduced grasses are proving successful:

W. 1.

For the slopes and the eastern Riverina, the following mixture is suggested:—

2 lbs. Lucerne.
1 " Wallaby Grass (*Danthonia*).
2 " Rhodes Grass.
2 " Wimmera Rye Grass.

7 lbs. Per acre.

Sow March to June.

W. 5.

For average wheat country of fair depth the following should give good grazing:—

2 lbs. Per acre Lucerne.

Sow in autumn and early and late winter.

W. 2.

Where soil is too shallow for Lucerne.

2 lbs. Subterranean Clover.
1 " Wallaby Grass.
2 " Rhodes Grass.
2 " Wimmera Rye Grass.

7 lbs. Per acre.

Sow March to June.

W. 4.

Where Lucerne does not thrive owing to shallowness of soil, use the following:—

3 lbs. Rhodes Grass.
3 " Wimmera Rye Grass.

6 lbs. Per acre.

Sow March to June.

W. 3.

For the nearer north-western and central western plains the following should prove suitable, especially on old cultivation paddocks.

2 lbs. Lucerne.
2 " Rhodes Grass.
2 " Wimmera Rye Grass.

6 lbs. Per acre.

Sow March to June.

W. 6.

For temporary summer grazing the following is recommended:—

8 lbs. Per acre Sudan Grass.

Sow Sept.-Dec.

SUPPLIERS OF RE-MACHINED AND TESTED FARM SEEDS

THE IMPORTANT GRASSES

For Spring and Summer Sowing

THESE four grasses, but especially *Paspalum Dilatatum* and Rhodes Grass, are very extensively used in our dairying districts, while Rhodes Grass will also succeed well in many parts of our Western Country where the elevation is not great. They should be sown in late spring, summer or early autumn when the weather and soil conditions are favorable for germination and quick growth.

Rhodes Grass (*Chloris gayana*)

A strong summer-growing perennial grass which produces an abundant leaf growth all through the warmer weather, spreading rapidly by surface runners which root readily at every joint. In New South Wales Rhodes Grass is amongst the most important pasture grasses in the areas between the coastal and the western slopes, excluding only the cold elevated districts. It is extremely susceptible to frosts and has not been found successful in localities over 2000 ft. in altitude. It succeeds in practically all soils except those of a heavy clay type and is better adapted than most introduced pasture grasses to the light granite and sandstone soils found in many of the wheat-growing areas and on the coast.

Rhodes and Lucerne grow well together and they make an exceedingly valuable feeding combination; 4 lbs. of the grass and 2 lbs. of Lucerne per acre is a fair sowing.

That Rhodes Grass may be grown successfully in the Western Districts has been amply demonstrated on the experiment farms at Cowra, Nyngan and Wagga and also by private pastoralists.

On coastal areas Rhodes is a favorite grass for sowing after burns and "holds its own" well in conjunction with *Paspalum* except perhaps on heavy moist flats where the latter is very aggressive. It is admitted that *Paspalum* will carry more stock than Rhodes Grass in ordinary seasons, but it is very doubtful whether it will maintain stock in so good condition as the latter.

Rhodes Grass makes excellent hay of high nutritive value. This should be cut as soon as the seeds begin to ripen, and should be cured as quickly as possible to prevent bleaching.

Sowing.—Rhodes Grass seed is always of rather low vitality and careful preparation of the seed bed is recommended. Only 4-6 lbs. of our heavily machined and carefully cleaned seed are required per acre; if the seed has not been cleaned even up to 20 lbs. per acre may be little enough. Broadcast sowing is generally recommended but where a wheat drill is available it may be used if the seed is mixed with "super" or some other material of suitable texture such as pollard. Advantage should be taken of favorable weather conditions, remembering that although little moisture is necessary to germinate the seed a fair amount is required to keep the young seedlings growing until the runners appear. At this stage the grass can be considered established and able to stand a fair amount of dry weather. In the drier air of the inland districts there is difficulty in obtaining a good germination when sowing. Sowing the seed on moist ground immediately after heavy rain appears to give the best results.

If sowing alone use 6-10 lbs. per acre; if sowing with other grasses and clovers 2-5 lbs. per acre according to circumstances.

Couch Grass (*Cynodon dactylon*)

Grows all over Australia but its economic value is confined to the temperate coastal districts. It is of great value for binding loose soil, sand banks, etc. It should not be planted near cultivation paddocks, as it is difficult to eradicate. Sow in warm weather after good rains. Sow ten pounds per acre.

In warm climates this grass is very largely used for lawns, making a close, fine turf, and withstanding considerable heat and drought. For this purpose a pound will sow about ten yards square.

Paspalum Dilatatum (Yates' Prime "Hand Shaken")

Does well planted in conjunction with Rhodes Grass in coastal districts after a burn. The seed should be sown during spring, summer, or early autumn, say from August to April. Succeeds best where moist warm conditions prevail, but will prove a very profitable crop even where a moderate rainfall is experienced, and under these latter conditions it is not so likely to become rank and difficult to deal with. Once introduced into low, moist land *Paspalum* soon covers it thickly and gives a tremendous bulk of feed except during the winter months. Much can be done, however, to provide winter feed by ploughing or heavily scarifying the *Paspalum* pasture and sowing in the autumn a mixture of winter grasses and clovers (see illustration on this page). It is also an excellent practice to sow a few pounds of Perennial Red Clover and White Clover with the *Paspalum*, as these provide feed when the latter is more or less dormant. Sow 10 to 12 pounds per acre.

Kikuyu Grass (*Pennisetum clandestinum*)

We undoubtedly have in Kikuyu a grass of which the quality and capabilities are hardly yet realised by farmers and pastoralists. It is a native of British East Africa and is a perennial grass with a strong system of surface and underground runners. On this account it is a very quick spreading variety and also remarkably drought resistant.

It should succeed and be profitable to grow in almost any part of New South Wales where the rainfall is 20 inches or over. It is of particular value for poor sandy soils where it is usually difficult to grow anything but weeds, though naturally the richer soils will give correspondingly better results.

Under coastal conditions it is the quickest growing grass we have, growth taking place continuously, except where heavy frosts are experienced.

It does not seed in Australia, therefore it can only be distributed by means of rootlets which we can supply at any time from late winter on. Plantings are usually made during the spring, summer and early autumn months. It is recommended to plow the land, opening up furrows six feet apart, and dropping in the rootlets every three feet. At this rate about 2,500 plants will suffice for one acre. The inclusion of Clover is, of course, recommended.

Approximate cost of Postage and Packing on Kikuyu Grass Roots—Per 100, 1s.; per 50, 9d.



Pasture Renovation at Dorrigo. Left—Winter Grasses and Clovers established on ploughed *Paspalum*. Right—Untreated *Paspalum* Pastures.

ARTHUR YATES AND CO., LTD.,

OTHER PASTURE GRASSES

Autumn Sowings only are recommended, except under special circumstances or where otherwise stated. The varieties in the following list are introduced grasses (except Wallaby and Mitchell Grass) which have been proved to have a distinct value in the temperate parts of Australia with a good average rainfall. They can be recommended for the New South Wales coast and tablelands and for districts with similar climatic conditions in other States. For Sowing Specifications and more complete Descriptions see Yates' Autumn Catalogue of Farm Seeds.

RYE GRASSES

ITALIAN (*Lolium Italicum*): This variety is biennial but will last longer if allowed to seed itself down. It is valuable as a hay crop sown alone, or with Clovers or grain, and is also used as a cover crop sown with perennial grasses. Because it is a quick grower and gives a large amount of feed, it is largely used in districts with good rainfall, such as the N.S.W. Coast and Tablelands for providing quick grass. It is one of the most valuable grasses for meadow hay, its erect habit of growth making easy cutting.

PERENNIAL (*Lolium perenne*): A very good winter grass for the dairy farmer in the coast and tableland districts. We offer two strains—Yates' A.Y. Old Pasture Perennial, saved in a dry climate from true perennial type pastures and very heavily re-machined, and Re-machined Perennial No. 2, which is the next best long lasting strain, and superior in this respect to many of the Rye Grasses offered. A great deal of the cheap Rye Grass offered is saved in cool, moist climates, and is, therefore, quite unsuited for Australian conditions.

WIMMERA (*Lolium rigidum*, var. *strictum*): An annual species which is exceedingly hardy and drought resistant and is proving of the utmost value on the western slopes and inland districts where there is a reasonably good winter rainfall. It will provide green feed for seven to eight months of the colder part of the year, and after it dries off it is still very nutritious as the seeds remain attached to the dry straw for a long period. It is being used very extensively for sowing down wheat lands which require periodical rest from the regular crop. In districts with a good regular winter rainfall it makes an excellent pasture sown in mixture with Subterranean Clover. It is an Annual which seeds itself down each year.

COCKSFOOT (*Dactylis glomerata*)

One of the hardest of the Perennial Grasses suitable for the coast and tableland districts of New South Wales, where it is used extensively, particularly on hill country and second quality ridges.

PRAIRIE GRASS (*Bromus unioloides*)

A very valuable grass for the dairyman, it grows luxuriantly during the winter if sown on rather loose rich soils, and cows milk splendidly on it. It should be allowed to seed itself down at the end of each growing season, and if grazed heavily then allowed to come away again, it will prove almost as valuable as a crop of oats. We offer Yates' Finest Bright Re-machined, which is plump seed of a very high percentage of germination and purity.

PHALARIS BULBOSA

An exceedingly valuable perennial grass which is considered by many to be superior to Rye Grass and Cocksfoot for our average tableland conditions. It is succulent, palatable and withstands hard cold conditions particularly well. Once established it is deep rooting and drought resistant and forms a splendid permanent pasture which stands hard grazing.

TALL OAT GRASS (*Avena elatior*)

This is another grass which is suitable for providing winter feed in our tablelands and districts where the finer grasses will not stand. It has a deep rooting system, is drought resistant and is considered suitable for land which is rather too light in character for other pasture grasses.

FESCUES

Of the several varieties of Fescue the one known as **Tall Fescue** (*Festuca elatior*) is most used. While it has not the feeding value of some of the finer grasses, it is extremely hardy, stands drought well, and is adapted to nearly all classes of soil. If allowed to grow too high it gets coarse but if kept fed down is quite palatable. It provides a valuable green pick when other grasses are dried up. **Chewings Fescue** (*Festuca rubra* var.) is fairly extensively used in New Zealand for sheep pasture. It is permanent and throws up a useful amount of feed in the early spring. **Meadow Fescue** (*Festuca pratensis*) is a fine perennial grass for districts where long dry spells are unusual. **Fine Leaved Fescue** (*Festuca ovina tenuifolia*) is extensively used in lawn mixtures but is not suitable for pastures.

POAS

There are two important varieties:—(a) **Kentucky Blue Grass** (*Poa pratensis*) which is suitable for tableland districts with a good rainfall where it will yield fine feed in the cool season. We strongly recommend autumn sowing only; (b) **Water Meadow Grass** (*Poa aquatica*): This is used rather extensively on marsh lands and swamps in Gippsland; it is nutritious but rather coarse. Seed is not available but we can usually supply roots.

TEFF GRASS (*Eragrostis abyssinica*)

An annual summer growing grass after the style of Sudan Grass. In all tests in this country, it has not proved nearly as good as Sudan Grass, which we regard as much more suited to Australian conditions.

ELEPHANT GRASS (*Pennisetum purpureum*)

Though not a pasture grass this is a fodder plant of considerable value. It stands cutting well and stock relish it if not allowed to get too high and coarse. It grows during the summer and if unchecked will attain a height of 12 to 15 feet. A few well established belts of this fodder should form a wonderful drought reserve. Roots only are available and should be planted in the spring.

WALLABY GRASS (*Danthonia species*)

One of the most valuable species of our Native Grasses, it grows in a wide variety of soils and climates and we strongly recommend that a small quantity be added to all mixtures.

MITCHELL GRASS (*Astrebla species*)

This is another exceedingly valuable native grass which provides a large amount of succulent herbage during the summer months. This grass is very nutritious, and extremely drought resistant. It is one of the most important grasses of the Western Plains of N.S.W. and Queensland. Seed is unobtainable this season.

OTHER GRASSES

We also stock the following, which, however, are of minor importance except for special situations or purposes:—*Paspalum compressum* (Dorrington Grass or Carpet Grass), Timothy, *Poa trivialis*, *Poa nemoralis*, Meadow Foxtail, Crested Dogtail, Yorkshire Fog, Rib Grass or Lamb's Tongue (not a member of the grass family), the *Agrostis* species, and Awnless Brome Grass (*Bromus inermis*) of which, although valuable, seed of good growth cannot be supplied at present.

SUPPLIERS OF RE-MACHINED AND TESTED FARM SEEDS

CLOVERS

The Clovers are a wonderful family of plants, and supply a great need in Australian pastures, namely—Winter and Early Spring Feed. In addition, their high protein content makes them good flesh builders rather than fatteners, they make excellent hay, and are particularly valuable as soil renovators.

FARMERS, especially those in areas where a fair rainfall is experienced, are realizing more and more the great value of the Clovers as **Soil-renovators**, as well as fodder crops of the highest quality, either alone, in pasture, or sown with other green stuff or hay crops. Like all other legumes they have the power of gathering large quantities of nitrogen from the air and a proportion of this is left in the soil.

The addition of one or other of the Clovers when laying down pastures or sowing green stuff or hay crops, will provide a much **better balanced ration** to the great benefit of the stock grazing it, and when the crop is done the Clover will often give a good picking for a considerable period, afterwards being ploughed in for **green manure**.

Clovers succeed best in good "sweet" land and usually respond well to superphosphate.

SUBTERRANEAN CLOVER

(*Trifolium subterranean*)

This clover has jumped rapidly into prominence and has proved of very great value. It grows for about six months during the cooler part of the year and buries the seeds just under the surface of the soil when matured. It is a prolific seed producer and the latter are readily eaten by stock, and in addition have no tendency to attach themselves to wool like the Trefoil Burr. We are convinced that Subterranean Clover will play a most important part in farming practice in a great many parts of the State. We strongly recommend that sowing should be confined to the autumn.

YATES' A.Y. SUPERFINE WHITE CLOVER

(*Trifolium repens*)

This is used perhaps more than any other for sowing down with pasture grasses. It spreads quickly in moist situations and is widely used in the coastal districts to provide a pick during the winter when grasses are dormant. On the tablelands its main growth is in spring and early summer. Though in dry years it will thin out considerably, the first good spring will bring enormous growth, as the seeds remain in the ground until the necessary moisture occurs. Probably the most drought resistant of the Perennial Clovers.

ALSYKE CLOVER (*Trifolium hybridum*)

This variety combines to some extent the qualities of the Red and White Clover but is not greatly used. It will succeed in soils which are too poorly drained for good results with Red Clover.

STRAWBERRY CLOVER

(*Trifolium fragiferum*)

Specially suited for low, wet, swampy land subject to floods, etc., this clover thrives where no other clovers and very few grasses would grow. It is nourishing feed and cattle thrive on it.

ENGLISH TREFOIL or BLACK MEDIC

(*Medicago lupulina*)

Coming into favor on the Northern Tablelands and Slopes, this clover is a perennial which does best in cold districts, and deep soils. It is recommended for these localities when other clovers will not thrive. It provides good bottom herbage through the winter and lasts well in pastures.

YATES' SUPERFINE PERENNIAL RED CLOVER OR COW GRASS

(*Trifolium pratense perenne*)

An important clover which succeeds in almost any district of good rainfall. It is largely used in conjunction with cereal crops for green fodder, when it provides abundant spring feed after the cereal has ripened off. In pastures it supplies excellent feed for two or three years, giving for a while a much larger yield than White Clover.

BOKHARA CLOVER (*Melilotus alba*)

The main commercial use of this clover is for renovating land, green manuring, etc. It has a vigorous deep root system which opens up the subsoil and provides humus after the plant is ploughed in at the end of the second year before seeding takes place; it is a biennial. Bokhara has a high fodder value, but is likely to taint milk at times, also the flour if it gets into wheat paddocks.

BERSEEM (or Egyptian) CLOVER

(*Trifolium alexandrinum*)

This is a very valuable member of the Clover family which grows during the winter, and under suitable conditions gives heavy yields of Lucerne-like green fodder of a high feeding value. It is an annual and rapidly goes off to seed with the approach of warm weather. It is more succulent than Lucerne (contains more water), and possesses a very large amount of nitrogen bacteria nodules on its root system which have a considerable influence on the fertility of the soil for subsequent crops. It is considered that this clover will give in temperate climates what Red Clover gives in cool climates, namely, a heavy continuous growth of winter fodder with a high protein content. It should be cut regularly when about a foot high, remembering that the more it is cut the heavier will be the yield.

To obtain a long growing season this clover must be sown in the early autumn, say February-March, and we suggest for trial in all temperate parts of the State, specially where lucerne does not thrive. Whenever it has come under the notice of farmers for the first time it has created great interest and should be included in crop rotations in all temperate climates. Eight to twelve pounds of seed per acre is usually sufficient.

BURR or "NATIVE" TREFOIL

(*Medicago denticulata*)

Although not indigenous to Australia, this clover has become so widespread that it has earned the title of "native." It furnishes very large quantities of feed during the cooler months of the year, while after it dies off, the seed forms a valuable concentrated food which sheep will readily pick up. The burrs on the seeds however are a great disadvantage in wool.

BURRLESS OR BUTTON TREFOIL

(*Medicago orbicularis*)

In a few of the northern districts of New South Wales this clover is popular. It is similar in appearance to our "Native" Trefoil, but has the distinct advantage that the seed is not enclosed in a hooked burr. The plant, however, is not nearly as hardy nor prolific as the latter.

Other Clovers

Other clovers we stock but for which there is only a small enquiry are Crimson Clover (*Trifolium incarnatum*), Lotus (varieties).

ARTHUR YATES AND CO., LTD.,

Lucerne for Pasture in Western Districts

The earliest records available of Lucerne and its use as feed for stock show that it was first found in the S.E. of Central Asia. Being a native plant in a climate such as that, there should be no doubt as to its ability to withstand dry conditions. Despite this, its use as a pasture plant in the drier Western districts of the State is not increasing as quickly as might reasonably be expected, and two of the main reasons advanced by some pastoralists for not sowing large areas are (1) That it is necessary to sow 10/12-lbs. of seed per acre; (2) That seed is expensive.

Answering the first argument it has been demonstrated that in a district as dry as Trangie, a light sowing of 2 lbs. per acre gives excellent results for grazing purposes, and in fact under these conditions gives a greater yield per acre than a thickly sown stand. With light sowings the plants form large crowns and in one test over a number of years showed an average increased yield of over 50% greater than a stand sown at the rate of 10 lbs. per acre under similar conditions. Taking the average number of seeds per lb. and an average germination, a sowing of 2 lbs. per acre is equivalent to 60/70 viable seeds per sq. yd. of surface soil.

Answering the second argument, that the seed is expensive, it should not be forgotten that with Lucerne, even more than annual crops, it pays to start with high quality, clean, plump seed. If the cost of high quality Lucerne seed is spread over the number of years that the stand is likely to remain established it becomes almost a negligible factor.

Sowing the Seed.—The usual method adopted in sowing seed on large areas is to use the wheat drill or "combine" and it is a good plan to mix the seed with Superphosphate, using 56 lbs. of fertiliser per acre immediately before sowing. It should be noted that the germination of seed which is left in mixture with the fertiliser for more than a few hours is detrimentally affected. Whatever methods of sowing are adopted it is essential that the seed be thoroughly but lightly covered with soil (the best depth being about $\frac{1}{2}$ in., no deeper), and that the seed bed be very firm so that the sprouting seeds may quickly obtain a grip of the soil. It is not uncommon for lucerne to be sown with the last crop of wheat or oats on land which is subsequently to be left out of cultivation for a few years. In these cases a very light sowing of wheat or oats should be made, certainly not more than half the usual quantity, as the cereals tend to crowd out the lucerne.

Feeding-off Lucerne Stands.—If the young plants have made 9 to 10 in. of top growth the area should be fed off quickly at the rate of ten to twelve sheep per acre. The stock should be removed immediately the feed becomes short, otherwise the crowns of the young plants are likely to be injured. "Hoven" or bloat need not be a serious trouble when feeding stock on lucerne unless they are very hungry or the lucerne is wet with rain or dew. A mixed pasture

of grasses and lucerne minimises the danger to a considerable extent, or another method is to allow the stock access to adjoining grass paddocks.

Care of Established Stand.—It is advisable to have reasonably small paddocks and to put large numbers of sheep on at a time so that the area is eaten off in at least ten to twelve days. If the soil surface sets hard owing to the tramping it should be cultivated at least about twice a year and 1 to $1\frac{1}{2}$ cwt. of Superphosphate applied prior to one of the cultivations, about July/August every second year.

Sowing Winter or Summer Crops on Thin Lucerne Stands.—Where Lucerne stands have been utilised for grazing for a number of years and are thinning out an autumn sowing of 20 lbs. of wheat or 30 lbs. Oats would provide a considerable quantity of winter grazing. Seed may be sown with a "combine" or the land may be first spring toothed and then planted with a wheat drill; similarly if summer feed is required, 8 lbs. of Sudan Grass may be sown in September/October.

Carrying Capacity.—In a three-years' test carried out at Trangie an average stocking of nearly $2\frac{1}{2}$ sheep per acre was carried. The carrying capacity of natural pasture at Trangie district is estimated at from $1\frac{1}{2}$ to 2 acres to the sheep. Incidentally during the first eighteen months of this test, only $16\frac{1}{2}$ inches of rain were recorded and the fact that during this period an average of over 2 sheep per acre was maintained shows that from a grazing standpoint the resistance of Lucerne to dry conditions is one of its outstanding qualities. In large areas small paddocks while by far the best are not absolutely essential as Lucerne will stand close and continuous stocking at least as well as most other plants.

WHEN TO SOW LUCERNE

SPRING SEASON POPULAR.

Although for the majority of districts autumn is the safest time to sow Lucerne, circumstances often occur which make it more convenient to sow in the spring. For instance, in land which grows a large amount of herbage in the winter, an autumn sown Lucerne may suffer severely from the heavy growth of weeds and herbage plants which are so hard to eradicate even with the most careful preparation. Under these circumstances August/September sowings are suggested, choosing favorable weather.

Again in cool tableland districts autumn sowings should not be made much later than March, if favorable weather has not occurred up till that time it is better to delay sowing until the early spring.

As an indication of the popularity of spring sowing it is interesting to note that our records show that practically as much Yates' A.Y. Broadleaf Giant Upright Lucerne seeds is sold in the spring as in the autumn.

**YATES' BROADLEAF
A.Y. LUCERNE—
GIANT-UPRIGHT**

—is supplied in sealed bags and is re-machined and tested seed of extra prime quality of a superior type of N.S.W. grown Lucerne, which is saved on selected farms in those districts in which, owing to special natural conditions, there has been evolved a long standing drought resisting strain, which has proved itself for Australian conditions.

SUPPLIERS OF RE-MACHINED AND TESTED FARM SEEDS

A Profitable Side Line!— MARKET GARDEN CROPS

FOR SPRING AND SUMMER PLANTING

IN districts within reasonable distance of the centres of population and with a fair average rainfall, it is often well worth while for the farmer to reserve some of his best land for vegetable production for market. The essentials for successful market gardening are good soil, good rainfall or facilities for irrigation, rotation of crops, intelligent use of fertilisers and regular cultivation.

Few crops average out as well as Cauliflower, Cabbage, Pea, Bean, Swede, etc., if grown under suitable conditions. It is wise first to decide what crops are best suited for your conditions and then to grow them consistently on a well planned rotation. In this way you will obtain better returns than the grower who is constantly changing over and thereby often meeting a "glut" of the particular line he is growing.

For best varieties, time to plant and for cultural directions, farmers should be guided by local experience and the information given in Yates' Annual and Yates' Garden Guide (1s., post free).

The higher returns regularly obtained by experienced men are evidence that skill and care are very necessary in this branch of farming. Where conditions of soil and season are not favorable, and where varieties have been sown unsuitable to the time of planting or the district, the crop is likely to vary considerably in type, season of maturing and uniformity. Our advice is to grow those varieties your neighbors have proved to do well, and then make your own experiments in a small way as to the suitability of later introductions and improved sorts.

Attention is directed to the Conditions of Sale and Non-Warranty set out on page one and on all invoices.

BEANS

For the warmer districts round Sydney and on the North Coast, beans are the prevailing market crop, and in those districts where early crops are possible very handsome returns are being obtained. The same remarks as to the desirability of growing this crop apply as they do to Peas. As to varieties, Canadian Wonder is the standard sort, but there are inferior strains offering. Yates' Selected Canadian Wonder are the prime samples offering of a heavy cropping type. A new variety which is quickly becoming known and sought after is Feltham Prolific, which is very early and an exceedingly heavy cropper. In the dwarf butter type Startler is considered the best, while in the climbing types, which are heavier yielders where supports can be provided, Yates' Epicure is the most popular. Usually two bushels per acre is a good sowing, and we advise sowing in drills far enough apart to permit of frequent horse cultivation in the early stages of the crop.

CABBAGES

Cabbages do best on rich deeply worked soil, and are largely grown on the cooler upland country near Sydney. The main planting should be made in December, January and February in most districts. Raise the plants in seed beds, transplanting out in rows when large enough to handle, 24 to 30 inches apart each way. About $\frac{1}{2}$ -lb. of seed is required to raise plants for one acre. The two leading sorts are:—

YATES' EARLY DRUMHEAD—One of the finest market cabbages grown. There is no better variety for standing the hot summers. The heads are large and solid, and in good seasons it matures in four months. We offer Yates' Specially Selected Strain, grown on our own Seed Farm. This strain has given every satisfaction. We also stock European-grown seed.

SUCCESSION—This and Yates' Early Drumhead are the two main cabbages used by market growers throughout Australia. It is a week or two earlier than Drumhead, otherwise very similar. A good carrier and the best and longest standing cabbage for autumn planting for spring use. Our stock is supplied by Peter Henderson, the originator (see illustration next page), and has proved an outstanding one in our trials. We can also supply good European seed.

Of the earlier sorts which are useful for spring planting in warm districts we suggest Yates' First Early Improved (conical heart) and Yates' Earliball, Yates' Vanguard, Yates' Utility which have ball-shaped hearts.

CAULIFLOWERS

These are somewhat uncertain, but where success is attained the profits are usually exceedingly satisfactory. The main thing is to grow them in good rich soil and rush them on quickly.

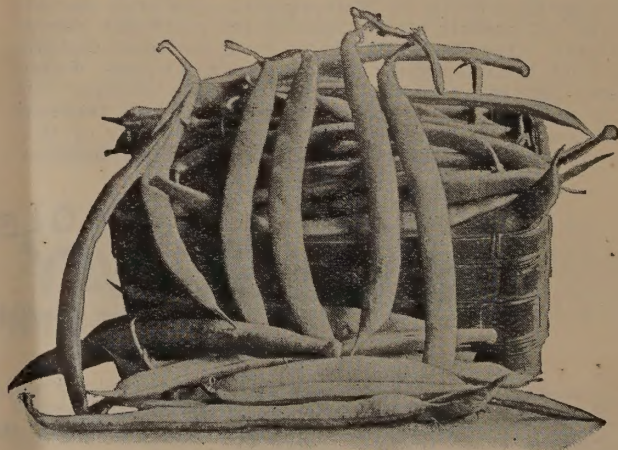
In dry weather they should be well watered, especially just after planting out.

Plant in December, January or February—this will generally give the best results.

Sow $\frac{1}{2}$ -lb. of seed for every acre of plants required. Varieties suitable include our two Specialities:—Yates' Phenomenal Early and Yates' Phenomenal Maincrop, which are rapidly capturing the Sydney Market; Early Italian Giant, Veitch's Autumn Giant, Late Italian Giant, and Yates' Metropole, which are self-protecting varieties, coming in from five to eight months in the order listed.

MELONS

There is always a demand for well grown fruit, and this applies particularly to the Rock Melon, which is such a favorite. Both Water Melons and Rock Melons can only be sown in the Spring when the ground is warm. Light rich well manured soil and plenty of warmth and moisture will produce splendid crops. The Rock Melons particularly in favor for market growing are Rocky Ford, Early Hackensack, Irondequoit, and Paul Rose, while in Water Melons growers usually ask for Yates' Market Wonder, Kleckley's Sweets, Cuban Queen, Tom Watson and Halbert Honey.



Grown from Yates' Selected Canadian Wonder.

ARTHUR YATES AND CO., LTD.,

MARKET GARDEN CROPS—(continued)

The Superlative Market Cabbage



Henderson's Succession—Grown and supplied by the originator, P. Henderson, New York.

CUCUMBERS

Cucumbers are a paying proposition to many small farmers in moist, mild districts. The seed must be sown in the Spring, when all danger of frost is over, in hills about four feet apart each way. The soil must be in good condition and be liberally manured, and to produce fruit of true character the plants must not be checked in any way. About $\frac{1}{2}$ -lb. of seed is sufficient per acre.

For the Sydney market **Improved White Spine** is undoubtedly the best for the main supply; it is of medium length, thick and solid; **Early Fortune**, a darker colored strain of White Spine, has been specially evolved for market growers; **Apple Shaped** is another good Market sort rapidly gaining favor with buyers; as also is our new variety of this type, **Yates' Crystal Apple**, a pure white skinned sort.

PEAS

In the Highland districts around Sydney and on the Tablelands, many farmers now devote a portion of their holding to the growing of green peas for the Sydney market, and in recent years this has proved very profitable. The growing of peas or beans for the vegetable market is excellent practice from a rotation point of view; it rests the land from ordinary farm crops, gives it the advantage of a leguminous crop, and leaves it in an improved condition for succeeding crops. A fair quality of land and a reasonable use of suitable manure are advisable for the best results. The most favored varieties for market gardeners are:—**Witham Wonder**, **Richard Seddon**, **English Wonder**, **Greenfeast**, and **Yorkshire Hero**, and we shall be pleased to quote on application. Usually 2 bushels per acre is a good sowing, and we advise sowing in drills far enough apart to permit of frequent horse cultivation in the early stages of the crop.

SUPPLIERS OF RE-MACHINED AND TESTED FARM SEEDS

PUMPKINS

We have given special attention during the last two or three years to careful Trial Ground Tests of the various strains of Pumpkins. For a long time the ordinary commercial stocks of Pumpkin seed have not been altogether satisfactory, and we therefore set out, by selecting and re-selecting the better strains and eliminating the poorer type, to make up a list of only first-grade reliable sorts. Information gained from our trials showed that some of the older type have been entirely superseded, and also that the higher costs necessary in the production of the improved strains are more than justified.

We consider that the three finest types in cultivation are **Yates' Queensland Blue**, a pumpkin of exceptionally fine quality and flavor, dark skin and beautiful golden flesh; **Yates' Tri-able**, the well-known distinctive three-cornered variety, and **Yates' Select Crown (Sydney Type)**, a re-selection from the old Crown strain, and superior to it in quality and productiveness. Seed supplies of the last-named variety are rather short this season. Sow at the rate of 2 lbs. per acre during late spring, in hills, and about 8 ft. apart each way.

HUBBARD SQUASHES

It is our opinion that the Hubbard varieties of Squash would be even more extensively grown if those who do not know them would but try them.

They are classified as winter varieties, this means that they are later than the summer varieties in maturing, and keep excellently when properly stored. In this respect they are like the better class pumpkins. The fruits mature in about four months from planting the seed, and the yields are very satisfactory. The flavour of these Squashes is all that can be desired, the flesh being dry, mealy, sweet, and altogether delectable. We have the **Blue**, **Green**, **Golden** and **Warted** varieties. For detailed descriptions, see Yates' Annual.

TOMATOES

Tomatoes are now grown very extensively and are yielding very good returns to those marketing clean, sound, well-graded fruit.

For instructions and general information regarding Tomato culture for market, we would refer readers to our Tomato booklet (post free on application). We are offering varieties claimed to have more or less resistance to the wilt disease, and we believe that it is through this quality of "resistance," when more fully developed, that the wilt disease will be overcome. In the meantime we suggest, these varieties be tried out under growers' local conditions, and that the market crops, especially the early planted areas, be sprayed every fortnight with Lime Sulphur or Bordeaux Mixture.

The useful varieties for market are **Yates' Earli-winner**, **Yates' Harbinger**, **Earliana**, **Chalk's Early Jewel**, **Bonny Best**, **Burwood Prize**, and **Stone**.

The different varieties only show their true character under favorable conditions; two ounces should raise sufficient plants for one acre. See Yates' Annual for descriptions.

MANURES AND FERTILISERS

SPECIAL NOTE TO CUSTOMERS SERVED BY RAIL (NOT COASTAL STEAMER).—If ordering the minimum quantity of those manures for which we give a special quotation "on rails at manure works," please indicate when writing whether you wish the fertilizer consigned from works separately from seeds or other goods, or whether you wish it consigned by us from Darling Harbour along with any other goods ordered from us at the same time. In the latter case the cost is higher, but for ease of carting or for other reasons it may suit you to pay extra price and have total order delivered in one consignment. If no indication is given we will consign direct from manure works.

BAG LOTS.—It is more economical to order bag lots rather than cwt. lots, as this saves breaking the bags. Bags weigh approximately 1½ cwt. in most cases, but vary according to kind ordered. The actual weight sent is charged for at the price per cwt. quoted.

All prices are F.O.R., Sydney, except where specially quoted F.O.R. Manure Works. All Freights are Charged Extra.

Name or Number of Manure	Class of Crops for which Fertilizer is suitable under average conditions.	No. of Bags per ton	Minimum quantity supplied at ton rates	Per ton F.O.R. Manure Works Freight extra	Per ton F.O.R. Darling Harbour	Bag Lots per cwt.	56 Lbs. and over per cwt.	28 Lb. Lots.	14 Lb. Lots	7 Lb. Lots
22% SUPERPHOSPHATE ..	Pastures, Wheat and other cereals and general use ..	12	4 bags	£5/2/6	£6/10/-	8/-	9/-	2/6	1/6	1/-
YATES' BLOOD AND BONE ..	General garden and market garden crops ..	16	16 bags	10/10/-	11/-/-	11/6	12/-	3/6	2/-	1/3
(Special quotes truck lots, minimum 8 tons)										
YATES' BONEDUST ..	General garden and market garden crops ..	12	12 bags	10/10/-	11/-/-	11/6	12/-	3/6	2/-	1/3
(Special quotes truck lots, minimum 8 tons)										
YATES' PLANT FOOD ..	General garden use, pot plants, etc. ..	12	6 bags	—	12/10/-	14/-	15/-	4/3	2/6	1/6
HYDRATE OF LIME ..	General garden use, and for sweetening land for leguminous crops, also for breaking down clay land ..	20	10 bags	—	12/-/-	12/6	14/-	4/-	2/6	1/6
No. 2 MIXED FERTILIZER ..	Hay crops, rape, turnips and maize ..	12	4 bags	7/7/6	8/15/-	10/3	11/-	3/-	1/9	1/-
No. 3 " " ..	Cabbages, cauliflowers, etc., and for maize on poor soils ..	14	4 bags	9/5/-	10/12/6	12/3	13/-	3/6	2/-	1/3
No. 5 " " ..	Tomatoes, potatoes, apples, pears, and grapes, passion fruit and general garden use ..	12	4 bags	9/12/6	11/-/-	12/6	13/3	3/9	2/3	1/6
No. 6 " " ..	Onions, tobacco, stone fruits and strawberries ..	12	4 bags	8/12/6	10/-/-	11/6	12/3	3/6	2/-	1/3
No. 7 " " ..	Citrus fruits and maize for grain ..	12	4 bags	10/15/-	12/2/6	13/9	14/6	4/-	2/6	1/6
No. 8 " " ..	Melons, pumpkins and vining plants, green fodder plants, other than legumes ..	12	4 bags	8/12/6	10/-/-	11/6	12/3	3/6	2/-	1/3
No. 11 " " ..	Lucerne, peas, beans and green manuring plants, especially legumes ..	12	4 bags	6/17/6	8/5/-	9/9	10/6	3/-	1/9	1/-
SULPHATE OF AMMONIA ..	For mixing or for special purposes like the top dressing of lawns where a highly nitrogenous manure is required ..	14	—	—	—	20/-	21/-	5/9	3/3	2/-
SULPHATE OF POTASH ..	For mixing or for special crops like roses, tomatoes, potatoes and fruit trees, which require additional potash ..	12	—	—	—	20/-	21/-	5/9	3/3	2/-
NITRATE OF SODA ..	For mixing or where special nitrogenous manures are required ..	12	—	—	—	20/-	21/-	5/9	3/3	2/-
FLORAPHOS, 2lb. cartons, 2/- ..	An excellent general purpose manure for the home garden, also convenient for using in solution as liquid manure ..	14	—	—	—	75/-	76/-	19/6	10/3	5/3

The "CAHOON" SEED SOWER

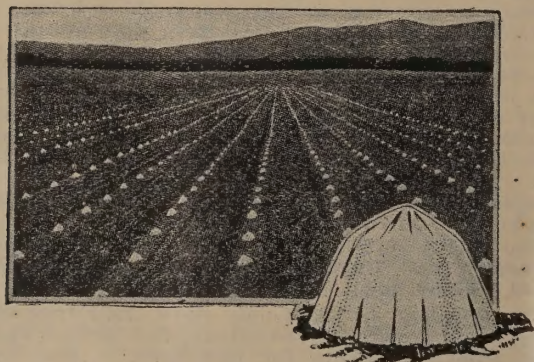
For sowing broadcast Lucerne, Clovers, Sudan Grass, Millet, Pasture Grasses, etc., and small areas of seed grain, these machines are excellent:

The Cahoon is a strong well-made machine capable of giving long and satisfactory service. Having filled machine and set gauge as per instructions, commence walking at ordinary pace, giving handle one complete turn each step. This will give a fine even sowing. Price on application. Postage: N.S.W., 2/9; Adjacent States, 5/-; W.A. and S.A., 7/3.

HOTKAPS

FOR MARKET GARDENERS
A Miniature Hothouse for Every Plant

Hotkaps are prepared wax paper shapes, about 6 inches high and 11 inches in diameter at the base. Illustrated and descriptive folder sent on request. Price on application. Carriage extra.



Hotkaps in the Field.

BOOKS

YATES' GARDEN GUIDE

Most useful to the amateur. It must be regarded as one of the best general handbooks on Australian Gardening (*vide* Press), 1/-, post free.

THE FARMERS' HANDBOOK

Published by the Department of Agriculture, N.S.W. An authoritative book on all phases of agriculture in N.S.W. Price, cloth bound, 10/6, postage 8d. extra.

GRASSES & FODDER PLANTS OF N.S.W.

(E. Breakwell)

Published by the Department of Agriculture. A complete and interesting study of the Grasses and Fodder Plants which are of commercial use in this State. 6/- each, postage 4d. extra.

PRUNING (W. J. Allen)

Published by the Department of Agriculture. Every orchardist should have a copy. 3/- ea., postage 3d.

VEGETABLE GROWING (Pinn & Makin)

Published by the Department of Agriculture. A reliable book on all phases of vegetable growing and marketing. 2/6 each, postage 2d. extra.

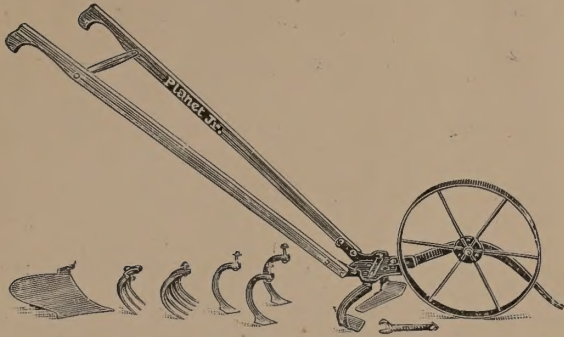
ARTHUR YATES AND CO., LTD.,

PLANET JR. IMPLEMENTS

For the Farm, Orchard and Large Garden

PRICES ON APPLICATION

The intelligent use of these wonderful labor-saving implements is a big factor in the successful working of market gardens, orchards, etc. Provided reliable seeds only are sown, regular and accurate planting, followed by consistent cultivation, will do more than anything else to ensure big returns. We therefore offer these machines with every confidence. They are the strongest and most useful on the market, and have an excellent reputation for design and durability.



No. 16—SINGLE WHEEL HOE, CULTIVATOR, RAKE AND PLOUGH.

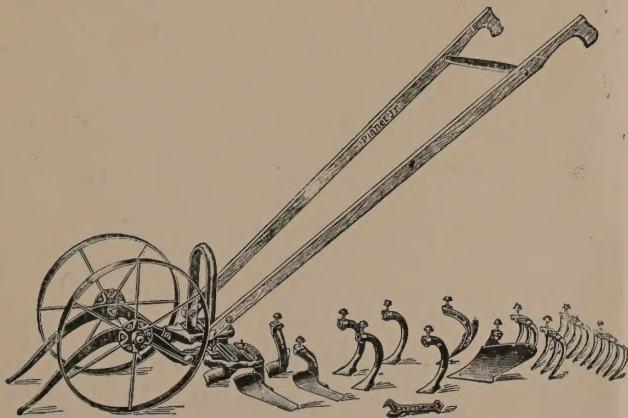
While Single Wheel Hoes do not accomplish as wide a range of work as the Double Wheel Hoes, they are lighter, and for steady all day work in the market garden, many growers prefer them. This machine can be used to hoe both sides of the row at once while the plants are small (special axle bolt and ferrules needed and furnished as extras). As the illustration shows, the equipment includes one pair of 6 in. hoes, three cultivator teeth, one large plough, one 7 in. rake, one 4 in. rake and leaf-guard.

Weight packed, about 30lbs.

No. 17.

Identical with No. 16, except that the equipment does not include the two rakes.

Weight packed, about 27lbs.



No. 11—COMBINED DOUBLE AND SINGLE WHEEL HOE.

The most completely equipped Wheel Hoe we offer. The height of the machine is adjustable for different work, and can be made to straddle rows 20 ins. high; and the various attachments are easily put on or

SUPPLIERS OF RE-MACHINED AND TESTED FARM SEEDS

removed. As the illustration shows, the attachments include—One pair of large hoes, one pair of small hoes, four cultivator teeth, one pair ploughs, one pair three-tooth rakes, one pair five-tooth rakes, two leaf lifters. Weight packed, about 40lbs.

No. 12.

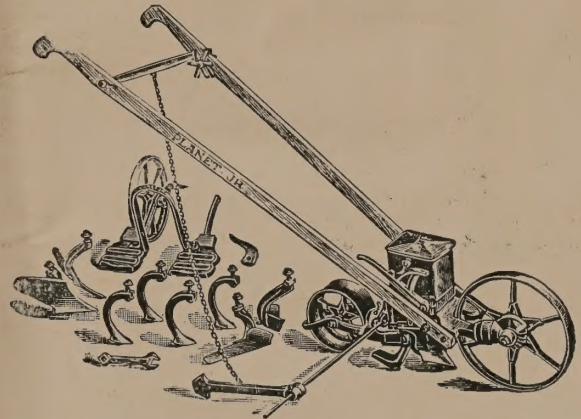
Identical with No. 11, except that the smaller set of hoes and rakes are not included.

Weight packed, about 36lbs.

No. 13

Identical with No. 11, except that the equipment is limited to one pair of large hoes.

Weight packed, about 30lbs.



No. 25—COMBINED HILL AND DRILL SEEDER, DOUBLE & SINGLE WHEEL HOE, CULTIVATOR AND PLOUGH.

An excellent hand machine for either garden or farm. It will sow almost all varieties of seeds, and is one of the most useful tools one can have. The equipment includes:—One pair of 6 in. hoes, four cultivator teeth, one pair of ploughs, two leaf guards and a marker. The hopper holds 2½ quarts.

Weight packed, about 61 lbs.

No. 4

Very similar to No. 25, except that it has one less cultivator tooth, only one plough, and one leaf guard.

Weight packed, about 50lbs.

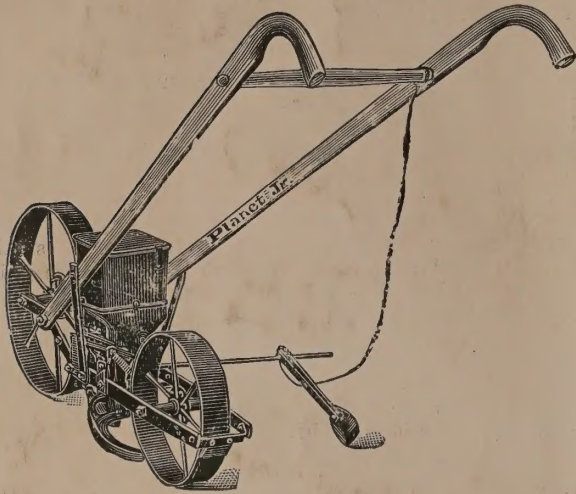
CARE SHOULD BE TAKEN TO—

- A.—Regularly oil all moving parts.
- B.—Clean off all dirt and trash before putting machine away after use.
- C.—Keep machine under cover when not in use.

If these details are attended to, the time spent will be many times repaid by prolonged life and low cost of replacements.

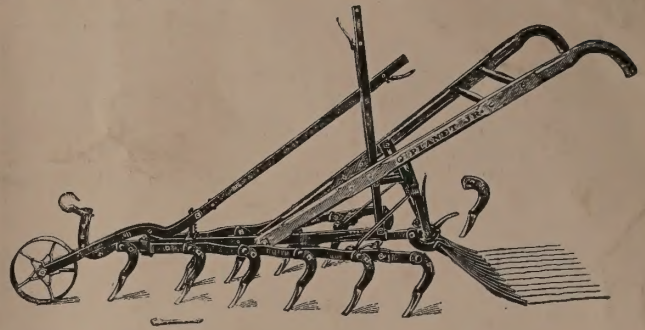
PLANET JR. IMPLEMENTS (continued)

PRICES ON APPLICATION



No. 300—DRILL SEEDER.
(An Improved No. 26)

This is essentially a seed sower for all types and conditions of soil. It incorporates a new system of dropping the seed, and the hopper which holds 4 quarts, is quickly removed, which facilitates emptying out surplus seed. The extra substantial wide tread wheels, front and rear, are not only easier running but cover the seed more evenly. Another good feature is that the seed shut-off operates independently of the index setting and cannot disturb it. Weight, packed, about 60lbs

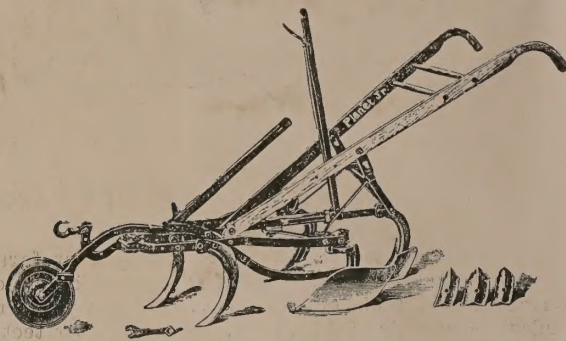


No. 90—TWELVE TOOTH HARROW, CULTIVATOR AND PULVERISER.

An extremely useful combination tool which leaves as fine surface marks as if it had been raked by hand. There is an extra tooth to take the place of the pulveriser if it is not required. The chisel-shaped teeth are 1½ ins. wide and the angle at which they traverse the ground is adjustable. The depth and width of cut are instantly adjustable by hand levers; the latter may be set anywhere between 15 inches and 3 feet. Nett weight, 74 lbs.

No. 90B.

Similar to No. 90, but without the pulveriser. Nett weight, 66 lbs.



No. 8—HORSE HOE AND CULTIVATOR.

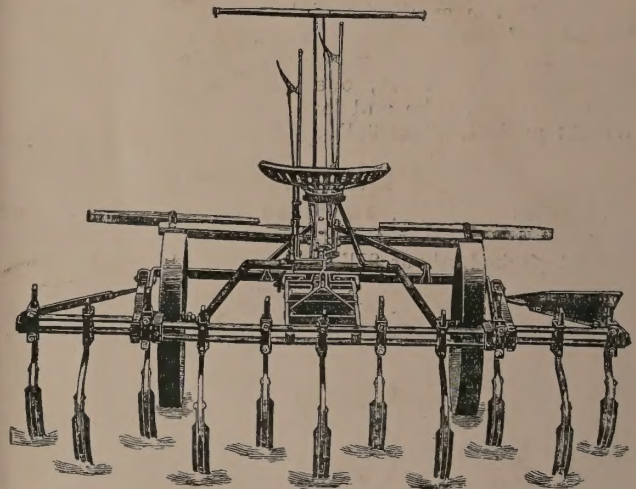
This horse machine is a general favorite, being complete and easily operated; it is extremely sturdy, well-braced and adaptable to any conditions. The equipment consists of:—Four 3 x 8 in. cultivator steels, one 4 x 8 in. cultivator steel, two 6 in. hillers, one 7 in. shovel and depth regulator. Nett weight, 83 lbs.

No. 7.

Identical with No. 8, with the exception of the depth regulator which is not included. Nett weight, 77 lbs.

No. 9.

Identical with No. 8, except that the wheel is not adjustable by lever and it is not fitted with depth regulator. Nett weight, 71 lbs.



No. 41—ORCHARD AND UNIVERSAL CULTIVATOR.

This machine has two wheels of which the track is adjustable from 30-40 ins. There are seven steel cultivator teeth running behind the wheels with two extra teeth on both sides on extension bars, making a total of eleven teeth. Complete with the extension, the machine cuts 6 ft. 6 ins., and can be adjusted anywhere down to a 4 ft. cut. There is a side hitch for two horses with the tongue set 15 ins. to the left of centre, thus allowing for working under low branches of orchard trees. Weight, packed, 474 lbs. Also supplied (a) with three-horse hitch, (b) without extension bars.